INPUT

ORDER/INVOICE/FULFILLMENT

Don

ORIGINATOR (SIGNATURE) _____ PREPARED BY: DWF DATE: 1/27/86

ACTIVITY

- [x] NEW ORDER
- [ ] CONTINUATION
- [ ] CHANGE
- [ ] CANCEL
- [ ] SPECIAL:

- [ ] FULFILLMENT ONLY
- [ ] SINGLE INVOICING
- [x] MULTI-INVOICING: NO. INVOICES 2
- [ ] PENDING:

COMMISSION TO:		SOLD BY:		APPROVED
DWF	100 %	DWF	100 %	
	%		%	INITIAL
	%		%	
	%		%	DATE

PRODUCT

- [ ] SUBSCRIPTION
- [x] CUSTOM
- [ ] MULTICLIENT
- [ ] REPORTS
- [ ] COPIES
- [ ] CONSULT./PRESENT.
- [ ] TAPES/MATERIALS
- [ ] REIMBURSED COSTS

US / UK	PROJ. I.D/YEAR	TITLE OR DESCRIPTION	AMOUNT
	YCB4	CELL/PAGE COMPETITIVE STUDY	$10,500

CLIENT AUTH.

P.O. # _____ INPUT CONTRACT [x] LETTER [ ] VERBAL [ ]

ATTACH ALL AUTHORIZING DOCUMENTS TO WHITE (CONTRACT) COPY. TO COME

ORIGINATOR / INVOICE

SHIP TO:*
NAME Ms. DIANE LEAKE
TITLE _____
COMPANY CBIS - 14th FL.
ADDRESS 600 VINE ST
Cincinnati, OH 45202
PHONE ( )

INVOICE TO: (IF DIFFERENT)
NAME _____
TITLE _____
COMPANY _____
ADDRESS _____
PHONE ( )

* [ ] Check here if more than one shipping address and attach names and addresses to green (fulfillment) copy.

* [ ] Check here for address change to mail list.

INVOICE TO READ: (FOR OTHER THAN STANDARD WORDING)

Still missing Contract Schedule & Work Statement

SPECIAL INSTRUCTIONS FOR HANDLING, BILLING, STAGGERED OR DELAYED PAYMENTS, ETC.

O.I.F. ONLY

INV. COMP.	BY:	DATE:	CLIENT #:	ORDER #:	INV. #:	MULTI-INVOICING
				5050	13061	____ OF ____

ORIGINATOR/SHIPPING FULFILLMENT

ITEM DESCRIPTION OR TITLE	NO.	BY	DATE	ITEM DESCRIPTION OR TITLE	NO.	BY	DATE

FULFILLMENT TO BE COMPLETED IN: [ ] PALO ALTO [ ] LONDON [ ] OTHER _____

R 1/81

• WHITE - ACCOUNTING • GREEN - ACCOUNTING • YELLOW - ACCOUNTING • PINK - ORIGINATOR
• GOLDENROD - REGIONAL SALES MANAGER

cc Pat Cunningham

INPUT
1943 LANDINGS DRIVE, MOUNTAIN VIEW, CA 94043 (415) 960-3990

INVOICE

TO: • Cincinnati Bell Information Systems
14th Floor
600 Vine Street
Cincinnati, OH 45202

REF: Ms. Diane Leake

ATTENTION: • Accounts Payable

DATE	INVOICE#	PROJ. CODE	SALES ORDER#	PURCHASE ORDER#
2/12/86	13061	Y-CB4	5050	

FOR:	Professional fee for custom research "Cell/Page Competitive Study"	
	First half now due and payable	$5,250.00
	THANK YOU	
	INVOICE TOTAL DUE ▶	$5,250.00

INPUT®

Parsippany Place Corporate Center, Suite 201, 959 Route 46 East, Parsippany, NJ 07054 (201) 299-6999

February 10, 1986

Miss Diane Leake
Cinncinnati Bell Information Systems
Rm. 1400
600 Vine St.
Cincinnati, Ohio 45202

Dear Miss Leake:

This document constitutes a record of work authorized by D. Disch in the area of Cellular/ Paging Billing services and software. Specifically, you requested and we agreed to:

I. 1. Determine nature of service and software offerings for eight vendors.

2. Determine existence or absence of a list of specific features for these services.

3. Determine using publicly available information the probable course of development for the services.

4. Determine the pricing, terms and conditions in which Cellular/ Paging Billing services and software are made available.

5. Analyze the above data for a list of vendors provided by CBIS and report on findings in the above areas.

6. Consult with members of the CBIS staff on specifics of certain vendors to meet immediate tactical requirements.

7. Provide a basic report on items 1 through 5 to CBIS.

A copy of the questionnaire developed by INPUT with participation of CBIS personnel is attached. After completion of aquisition of the baseline data INPUT recommends that CBIS give serious consideration to:

II. 1. An onsite presentation of the study findings so that all concerned parties may hear first hand the results of the study.

2. A "benchmarking" exercise in which a model is built of the pricing of the various competitors and compared with CBIS pricing for these services and to assess areas of pricing strength and weakness.

3. A market size estimation exercise to reconcile the various conflicting claims of the participants combined with a customer satisfaction study

to determine both the size of the opportunity and probable future changes in user/supplier relationships, as well as, key requirements of users.

Schedule and Fees

This engagement shall be completed within 45 days of the "informal" start date of January 30, 1986 for items in part I, above. No schedule or fees have been set for the recommended items in part II. The fee for the part I items shall be $10,500.00 payable in two installments of $5,250.00. The first installment is due upon receipt of invoice, the second at completion of the study. Expenses for telephone, travel and lodging (if any) will be billed at the completion of the study and at cost.

Conclusion

INPUT is pleased to have this opportunity to serve CBIS. To validate our agreement, simply sign in the space provided below. Should there be any questions, please contact the undersigned.

Sincerely,

D.W. Fostle
Vice President

Accepted by Cincinnati Bell Information Systems:

Name: _____

Title: _____

Date: _____

Signature: _____

Don
FYI

INPUT

1943 LANDINGS DRIVE, MOUNTAIN VIEW, CA 94043 (415) 960-3990

INVOICE

TO: • Cincinnati Bell Information Systems
Room 1400
600 Vine Street
Cincinnati, OH 45202

REF: Ms. Diane Leake

ATTENTION: • Accounts Payable

DATE	INVOICE#	PROJ. CODE	SALES ORDER#	PURCHASE ORDER#
3/10/86	13109	Y-CB4	5050	

FOR:	
Competitive Analysis and One Day of Consulting on March 5, 1986	$7,500.00
Travel Expense	272.86

THANK YOU

INVOICE TOTAL DUE ▶ $7,772.86

INPUT FEDERAL ID# 94-2385674

10/80

PARKING LOT RECEIPT

NOT VALID UNLESS TIME & DATE STAMPED

APCOA, Inc.
NEWARK INTERNATIONAL AIRPORT
CENTRAL TOLLS PLAZA, BUILDING 105
NEWARK, NEW JERSEY 07114
Phone: (201) 961-4750

TIME OUT: 064 16 .. 46

Lot # .... Lane # ....

Parking Charges Including
Newark Parking Tax $11

Total ....

Ticket # .... Lic # ....

Attendant ....

Please report any discourtesy or problem so we can improve our service to you

THE WESTIN HOTEL

Cincinnati
AT FOUNTAIN SQUARE
CINCINNATI, OHIO 45202

ROOM NO | NAME | IN | OUT | RATE

STREET ADDRESS

CLERK | CITY | STATE | ZIP

CORP. AFFILIATE | FROM | TO

	DATE	CHARGE	ROOM	CHARGES	CREDITS	BALANCE	PREVIOUS BALANCE PICKUP	
2852	03/04/86	RESO	612	8.06		**113.66 /28	**105.60	C
2895	03/05/86	RESO	612	6.02		**119.68 /41	**113.66	A
2905	03/05/86	LDST	612	5.34			**119.68	A
	03/05/86	LDST	612	7.34		**132.36 /00		A

A FINANCE CHARGE is computed on account balances which are delinquent the PERIODIC RATE is 2.0% per month, the ANNUAL PERCENTAGE RATE is 2[illegible]

REGARDLESS OF CHARGE INSTRUCTIONS, THE UNDERSIGNED HAS REVIEWED THE ABOVE CHARGES AND ACKNOWLEDGES THEM AS [illegible] INDEBTEDNESS AND AGREES TO PAY SAME UPON DEMAND. SHOULD IT BECOME NECESSARY TO ENFORCE PAYMENT OF THIS OBLIGATION, THE UNDERSIGNED AGREES TO PAY ALL [illegible] COLLECTION, INCLUDING COURT COSTS AND ATTORNEY'S FEES

CHARGE TO [signature]

PASSENGER'S RECEIPT, TAXICAB FARE

Cincinnati, Ohio

Date: March 4 - 86

Amount of Fare $ 15.00

Driver's Name: Nimal

Cab Number: 435

RADIO CAB CO.

24 HOUR-SERVICE
CITY-WIDE
681-5100 3/5/86

FROM: CINCI

TO: AIRPORT

FARE 18.00

PASSENGER TICKET AND BAGGAGE CHECK

ISSUED BY: PIEDMONT AVIATION INC

CONJUNCTION TICKET(S)

ARC PASSENGER COUPON

See below for Airline Form, Serial Number

UNIGLOBE FRANKEL
TVL ASSOC
MORRISTOWN NJ
31 92731-3/

PSGR CPN

PASSENGER NAME — NOT TRANSFERABLE: FOSTLE/DON MR

DATE OF ISSUE: 28 FEB 86

XIP 2880-3-13-HF

X/O	FROM / TO	CARRIER	FLIGHT	CLASS	DATE	TIME	STATUS	FARE BASIS/TKT DESIGNATOR
	NYC NEWARK	PI	123	H	4MAR	700P	OK	H
O	CINCINNATI	PI	12	H	5MAR	540P	OK	H
	NYC NEWARK							
	--VOID--							
	--VOID--							

FARE: 72.22 — FARE CALCULATION: 4MAR EWRPICVG 36.11 PIEWR 36.11 $72.22

TAX: 5.76

TOTAL: 78.00 — FORM OF PAYMENT: AX3781 167897 91009 EXP 0987 8839

AIRLINE DATA: 0070/ SC-SC

CONTROL NO.: 00348102193

030 7807517075 1

ORIGINAL ISSUE: 0302 10

DO NOT MARK OR WRITE IN THE WHITE AREA ABOVE

AMERICAN EXPRESS — Record of Charges

Cardmember Acct. No: 3781 167897 91009

Approval Code: 367114

Cardmember: 10/8[illegible] THRU 09/87 78 AX

DONALD W FOSTLE

Service Establishment: WESTIN HTL 000 / 02[illegible]000222 052 / [illegible] / 3340105154 OHIO

Date of Charge: 3-4 86

Merchandise/Services: Lodging

Total: 132.36

Invoice Number: 389602

Cardmember Copy

Please Print Firmly

INPUT

ORDER/INVOICE/FULFILLMENT

ORIGINATOR (SIGNATURE) _____ PREPARED BY: _____ DATE: _____

ACTIVITY

- ☐ NEW ORDER
- ☐ CONTINUATION
- ☐ CHANGE
- ☐ CANCEL
- ☐ SPECIAL:

- ☐ FULFILLMENT ONLY
- ☐ SINGLE INVOICING
- ☐ MULTI-INVOICING:
  NO. INVOICES _____
- ☐ PENDING:

COMMISSION TO:	SOLD BY:
_____ _____ %	_____ _____ %
_____ _____ %	_____ _____ %
_____ _____ %	_____ _____ %
_____ _____ %	_____ _____ %

APPROVED

INITIAL _____

DATE _____

PRODUCT

- ☐ SUBSCRIPTION
- ☐ CUSTOM
- ☐ MULTICLIENT
- ☐ REPORTS
- ☐ COPIES
- ☐ CONSULT./PRESENT.
- ☐ TAPES/MATERIALS
- ☐ REIMBURSED COSTS

US / UK	PROJ. I.D./YEAR	TITLE OR DESCRIPTION	AMOUNT

ORIGINATOR

CLIENT AUTH.

P.O. # _____ INPUT CONTRACT ☐ LETTER ☐ VERBAL ☐

ATTACH ALL AUTHORIZING DOCUMENTS TO WHITE (CONTRACT) COPY.

INVOICE

SHIP TO:*

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

PHONE ( )

INVOICE TO: (IF DIFFERENT)

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

PHONE ( )

* ☐ Check here if more than one shipping address and attach names and addresses to green (fulfillment) copy.

* ☐ Check here for address change to mail list.

INVOICE TO READ: (FOR OTHER THAN STANDARD WORDING)

SPECIAL INSTRUCTIONS FOR HANDLING, BILLING, STAGGERED OR DELAYED PAYMENTS, ETC.

O.I.F. ONLY

INV. COMP.	BY:	DATE:	CLIENT #:	ORDER #:	INV. #:	MULTI-INVOICING _____ OF _____

ORIGINATOR/SHIPPING FULFILLMENT

ITEM DESCRIPTION OR TITLE	NO.	BY	DATE	ITEM DESCRIPTION OR TITLE	NO.	BY	DATE

FULFILLMENT TO BE COMPLETED IN: ☐ PALO ALTO ☐ LONDON ☐ OTHER _____

- WHITE - ACCOUNTING
- GREEN - ACCOUNTING
- YELLOW - ACCOUNTING
- PINK - ORIGINATOR
- GOLDENROD - REGIONAL SALES MANAGER

R 1/81

INTERVIEWEES

THE FOLLOWING FIRMS WERE INTERVIEWED:

	COMPANY	TITLE
(3)	BELL ATLANTIC ENTERPRISES	MKTG. DIRECTOR
(6)	CELLULAR SOFTWARE, INC	PRESIDENT
(4)	CELLTECH, INC	MKTG. DIRECTOR
(2)	BANK OF ILLINOIS	MKTG. VICE PRESIDENT
(3)	CELLULAR BUSINESS SYSTEMS	MKTG DIRECTOR
(1)	NORTH CENTRAL DATA COOP.	SALES DIR., SY. SYSTEMS COORD.
(1)	AUXCO	VICE PRESIDENT
(2)	TDS	MKTG. DIRECTOR

- INTERVIEW DURATION RANGED BETWEEN 1½ AND 2½ HOURS PER FIRM, ALL DURING FEBRUARY 1986. ACCORDINGLY STATES ABOUT PLANS OR FUTURE CAPABILITIES SHOULD BE REFERRED TO THIS DATE

RESPONDENT PROCESSING CHOICES

COMPANY	HARDWARE	O/S	DBMS
AUXCO	IBM 43XX	MVS	IMS, CICS
BANK ILL.	IBM 43XX	VM to MVS	NONE
BELL ATL.	IBM 3081 NEC VAX	MVS XA VMS	IMS —
CELLTECH	IBM 43XX	VSE	CICS
CELL BUS. SYS.	IBM 43XX	VSE	NONE
CELL. SOFT	DATA PT 70 IBM PC	CAN	NONE
NCDC	BGH 6800 / BGH 96	MCP	DBMS
TDS	AMD V/8	MVS XA	NONE

- NOTE THE OVERWHELMING PRESENCE OF "370" ARCHITECTURE IBM SYSTEMS AND THE STRONG SHOWING OF MVS.
- NOTE ALSO THAT A DBMS APPROACH IS NOT UNIVERSAL.
- CELLULAR SOFTWARE HAS A TECHNICALLY UNIQUE "DISTRIBUTED" ARCHITECTURE. OTHERS INCLUDING BAE, CELLTECH, NCAC, TDS, BANK ILL., PLACE SOME PROCESSING OPERATIONS ON THE CUSTOMER SITE, USUALLY WITH A MS/DOS PC.
- ONLY AUXCO AND CELLULAR BUSINESS SYSTEMS ARE "CLASSICAL" ONLINE SYSTEMS WITH 3270'S UNDER SNA.

CUSTOMER EQUIPMENT

COMPANY	DESCRIPTION
AUXCO	3720's UNDER SNA OR BISYNC, 4.8 OR 9.6
BANK ILL.	PC/DOS MICRO, DISKETTES ARE SHIPPED, TELECOMM FOR UPDATES IN FUTURE. BASICALLY ALL FUNCTIONS EXCEPT RATING & RENDERING ON PC.
BELL ATL.	MICROVAX ON CUSTOMER SITE DOES RATING, IBM PC ACTUATES SWITCHES, 3270's CAN ALSO BE USED.
CELLTECH	IBM PC FOR CUSTOMER SERVICE & ACCOUNTS RECEIVABLE
CELLULAR BUS. SYS.	3270's UNDER SNA @ 9.6
CELLULAR SOFTWARE	ARCNET-BASED DISTRIBUTED SYSTEM. WILL USE PC/AT's AND CHARLES RIVER PROCESSORS. HAS NO "MAINFRAME."
NCDC	ALL FUNCTIONS EXCEPT RATING AND RENDERING ON LOCAL BGH GEAR RANGING FROM B-96 TO B-1900
TDS	ALL FUNCTIONS EXCEPT RATING AND RENDERING HANDLED ON PC. LIMITED TO ONE PER SITE CURRENTLY.

NOTE: CUSTOMERS ARE EXPECTED TO PROVIDE OWN EQUIPMENT IN MOST CASES. NCDC SELLS BGH AT DISCOUNT, BAE PROVIDE VAX AS A PART OF SERVICE

SERVICES OFFERED

COMPANY	TYPE CELL BILL	PAGE BILL	CELL SOFT	PAGE SOFT	CELL TURN	PAGE TURN	SAME
AUXCO	Y	Y	Y	Y	P	P	Y
BANK ILL	Y	Y	P	P	P	P	Y
BELL ATL	Y	N	Y	P	F	F	N
CELLTECH	Y	Y	Y	Y	F	F	Y
CELL. BUS. SYS	Y	Y	Y	Y	P	P	Y
CELL. SOFT.	N	N	N	N	Y	Y	Y
NCDC	Y	Y	P	P	N	N	Y
TDS	Y	F	P	F	Y	P	Y
% YES	88%	63%	50%	38%	25%	13%	88%

KEY: Y = YES; N = NO; P = POSSIBLE NOW; F = HAS FUTURE PLANS

SERVICES OFFERED, CONT'D

- WITH THE SOLE EXCEPTION OF BELL ATLANTIC, RESPONDENTS STATED THAT SYSTEMS AND SOFTWARE WERE THE SAME FOR PAGING AS CELLULAR. THESE RESPONDENTS DID NOT GIVE THE IMPRESSION THAT THEY ENGAGED IN MATERIAL PAGING ACTIVITY.

- IT APPEARS THAT THESE RESPONDENTS DO NOT TREAT PAGING AS A DISCRETE MARKET WITH SEPARATE NEEDS. SOME STATED THAT PAGING WAS "SIMPLE" AND COULD BE HANDLED INHOUSE.

- ALSO NOTABLE IS THE VERY HIGH DEGREE OF FLEXIBILITY AS INDICATED BY "P" RESPONSES. IN EFFECT, THESE INDIVIDUALS

ARE SAYING, THAT WHILE THEY HAVE NOT "DONE DEALS" IN THESE MODES THEY REMAIN OPEN TO THE POSSIBILITY. THE WILLINGNESS TO NEGOTIATE VIRTUALLY ANY ARRANGEMENT WAS MULTIPLY EXPRESSED IN MANY CONTEXTS BY ALMOST ALL RESPONDENTS. THESE PEOPLE ARE FLEXIBLE ON BUSINESS TERMS & CONDITIONS AS WELL AS MODES OF DELIVERY.

- THIS CAN BE SEEN IN THE TOTALS WITH 46% OF ALL POSSIBLE ENTRIES INDICATED AS "YES," 27% AS "POSSIBLE," 13% AS "AVAILABLE IN FUTURE" AND ONLY 14% AS "NO." OF THE "NO'S" OVER HALF COME FROM ONE SPECIALIST FIRM, CELLULAR SOFTWARE.

- OF THE COMPETITORS EXAMINED ALL BUT ONE ARE POTENTIAL COMPETITORS FOR CBIS IN CELLULAR BILLING PROCESSING SERVICES AND SOFTWARE SALES. THIS DOES NOT MEAN THAT THEY ARE ALL MEANINGFUL COMPETITORS, AS WE SHALL SEE.

MEANINGFUL COMPETITORS

- FROM THE COMPLETE LIST WE MAY REMOVE THE FOLLOWING AS SIGNIFICANT COMPETITORS:

COMPANY	REASON(S)
CELLULAR SOFTWARE	TECHNICALLY UNUSUAL, MAIN INTEREST IN NON-BELL & CANADIAN. DOES NOT WANT TO DEAL WITH BOC'S DUE TO PRIOR BAD EXPERIENCE. LIMITED MARKETING.
NCDC	EMPHASIS ON SMALL TELCOS, NON-IBM BUT VERY INEXPENSIVE. LIMITED MARKETING
TDS	LIMITED SYSTEM SIZE (1K BILLS/MONTH) FOCUS ON SMALL TELCOS.
CELLTECH	EMPHASIS APPEARS TO BE AT LOW END OF MARKET, PC-ORIENTED, NO COMMUNICATION LIMITS TO 3-4K BILLS/MO/CUSTOMER.

→

THE MAIN COMPETITORS ARE:

AUTCO – VERY AGGRESSIVE, CLAIMS LARGEST MARKET SHARE. CLAIMS 252,000 BILLS PROCESSED IN DECEMBER 1985. HAS MULTIPLE FIELD OFFICES. TECHNOLOGICALLY SIMILAR TO CBIS

BELL ATLANTIC – NEW ENTRANT WITH SOPHISTICATED, VERY COMPLETE SYSTEM. SHOWS CONSIDERABLE FLEXIBILITY IN SEEKING "RELATIONSHIP" DEALS

BANK OF ILLINOIS – CONSIDERABLE HISTORICAL STRENGTH BUT MAY LOSE MOBILNET. SEEMS TECHNICALLY LESS SOPHISTICATED BUT CONTINUES TO INVEST AND DEVELOP.

CELLULAR BUSINESS SYSTEMS – TECHNICALLY SIMILAR TO CBIS, EMPHASIZES SERVICE OVER SOFTWARE DUE TO "MARKET VOLATILITY." CLAIMS 100K BILL/MO. CAPACITY. FOR SYSTEM WHICH WAS RE-WRITTEN 1982.

FUNCTIONS HANDLED

- 32 SPECIFIC BILLING FUNCTIONS WERE EXAMINED WITH RESPECT TO OFFERINGS, CHARGES AND PLANS TO OFFER (IF NOT PRESENTLY AVAILABLE). THIS SECTION SUMMARIZES THE RESPONSES.

- HANDLES ROAMING - ALL CLAIM TO OFFER. EXTRA CHARGES AT BANK ILL, CELL BUS. SYSTEMS AND TOS.

- RATES DOMESTIC TOLL - ALL CLAIM TO OFFER. NCDC CHARGES 1.5¢/RECORD. ALL OTHERS N.C.

- RATES INTERNATIONAL TOLL. NCDC NO, CELL SOFT CANADA ONLY, CELLTECH NO, AUXCO MANUAL. OTHERS YES.

- ~~ONLINE USAGE INQUIRIES~~ - YES AUXCO, RJE AT BANK OF ILL, ON VAX AT BELL ATLANTIC. ON PC ~~AT CELLTECH~~, YES AT CELL BUS. SYS. YES AT CELLSOFTWARE, COCHLON BGH AT NCDC. ~~ALLCROFICHE~~ OR TELETHINE ONLY AT TOS,

- ~~ONLINE ORDER ENTRY~~

ONLINE CAPABILITY

		USAGE	O/E	ORD. INQ.	ACCT INQ
	AUXCO	Y	Y	Y	Y
AUXCO	BANK ILL.	RJE	RJE	RJE	RJE
BANK ILL.	BELL ATL.	VAX	VAX	VAX	VAX
BELL ATL.	CELLTECH	PC	PC	PC	PC
CELLTECH	CBS	Y	Y	Y	Y
CBS	CELL SOFT	Y	Y	Y	Y
CELL SOFT	NCDC	BGH(L)	BGH(L)	BGH(L)	BGH(L)
NCDC	TDS	NO	PC	PC	PC
TDS					

- NOTE THAT WHILE ALL FIRMS HANDLE THESE FUNCTIONS THEY ARE PERFORMED IN DIFFERENT WAYS.
- ONLY AUXCO AND CBS ARE "CLASSICAL" 3270 ONLINE; BALANCE RETAIN INFORMATION LOCALLY.
- TDS HANDLES USAGE REQUESTS BY TELEPHONE VERBALLY OR SENDS FICHE.

CAPABILITY, CONT'D

	O/L CASH ENTRY	O/L BILL ADJ.	TREAT	LOCKBOX
AUXCO	Y	Y	Y	Y
BANK ILL.	RJE	RJE	Y	Y
BELL ATL.	Y	Y	Y	Y
CELLTECH	N	N	Y	Y
CBS	Y	Y	Y	Y
CELL SOFT	Y	Y	Y	Y
NCDC	BGH(L)	BGH(?)	Y	N
TOS	PC	PC	PC	N

- AS IN THE EARLIER CAPABILITIES, NOTE THE VARIETY OF CAPABILITIES.

CABABILITIES, CONTD

(11)

	ITEMIZATION	ADV. PAY	DEP. ACCTG.	RATE MAINT.
AUXCO	Y	Y	Y	Y
BANK ILL.	Y	Y	Y	Y
BELL ATL.	Y	Y	Y	Y
CELLTECH	Y, DISKETTE	Y	Y	Y
CBS	Y	Y	Y	Y
CELL SOFT	Y	Y	Y	Y
NCDC	FICHE	Y	Y	Y
TDS	Y	Y	Y	Y

- NOTE THAT WITHIN THIS GROUP THERE IS LITTLE VARIATION ON THESE ITEMS
- DEPOSIT ACCOUNTING IS TYPICALLY WITH INTEREST COMPUTATION

	HOTLINE	TRAFFIC	STORERS,	AD HOC RPTS
AUXCO	ACCT. MGRS	EASYTRIEVE	25	EASYTRIEVE ($65)
BANK ILL.	8-5 5 DAYS	NO	NO	YES ($45)
BELL ATL.	8-5 5 DAYS	CELL SITE	SOME	YES ($65)
CELLTECH	8-8 5 DAYS	YES	YES	YES (N.C.)
CBS	12 HRS 5 DAYS	YES	12	YES ($50)
CELL SOFT	9-6 5 DAYS	YES	YES	USER
NCDC	8-5 5 DAYS	YES	YES	YES (N.C.)
TOS	8-4:30 5 DAYS	NO	12+	YES ($65)

- SUPPORT IS GENERALLY FOR BUSINESS HOURS LOCALLY
- TRAFFIC REPORTS WHEN PRESENT ARE MINIMAL, E.G., ERLANGS, CCS, BUSY.
- STANDARD REPORT CAPABILITIES VARY WIDELY AS DOES PRACTICE WITH AD HOC REPORTING.

CAPABILITIES, CONT'N

	REPAIR TRACK	# INV.	AUTO ASSIGN	REM. AGT. ENTRY
AUXCO	Y	Y	N(6)	Y
BANK ILL.	N	Y, PC	N	N(6)
BELL ATL.	N	Y	Y, PC	Y
CELLTECH	N	Y	N	N
CBS	N	Y	Y	Y
CELL SOFT	Y	Y	Y	Y
NCDC	Y	Y	N	N
TOS	N	Y	N	N

- NUMBER # IN PARENTHESES INDICATES PLANS TO OFFER WITHIN 6 MONTHS.

CAPABILITIES, CONT'D

(14)

	SALES LEAD	DEMAND BILL	G/L INTER	INV. TO S.O.
AUXCO	EASYTRIEVE	N	Y (MSA)	N
BANK ILL.	N	N	N(6)	N
BELL ATL.	N	N	N(6)	N
CELLTECH	N	N	N	N(2)
CBS	N(6)	N(6)	N	N
CELL SOFT	Y	Y	Y(own)	Y
NCDC	N	N	N(9)	Y
TDS	N	N	Y(own)	Y

- IN GENERAL, THIS IS A SPARSELY POPULATED SET WITH SOME DEVELOPMENT IN PROCESS.
- SOME R'S INDICATE THAT THEIR CUSTOMERS DO NOT MAINTAIN EQUIPMENT INVENTORIES. AN INVENTORY TO S.O. IS THEREFORE NOT NECESSARY IN THEIR VIEW.
- G/L INTERFACES ARE USUALLY VERY SPECIFIC. MOST INDICATE THEY WOULD WRITE A CUSTOM INTERFACE ON A T&M BASIS.

CAPABILITIES, CONT'D

	EQUIP/LINE LINK	INV. FORECAST	INV. BAR CODE	INV./GL INTER
AUXCO	Y	N	N	N
BANK ILL.	N	N	N	N
BELL ATL.	Y (PC)	N	N	N
CELLTECH	N	N	N	OK
CBS	Y	N	N	N
CELL SOFT	Y	N	N	N
NCDC	N	N	N	N
TDS	Y	N	N	Y

- BELL ATL. HAS SEPARATE PC-BASED SYSTEM FOR EQUIPMENT INVENTORY USED BY AGENTS. ALSO INCLUDES LEAD TRACKING

- NO ONE OFFERS OR PLANS TO OFFER INVENTORY FORECASTING OR BAR CODE SCANNING. R'S SEEMED "POLITELY MYSTIFIED" BY THESE QUESTIONS.

CAPABILITIES, CONT'D

(6)

	TAX LEVELS	RENDERING
AUXCO	6 MAX	3 DAYS
BANK ILL	6	5 DAYS
BELL ATL	5	4 DAYS
CELLTECH	85	4 BUS. DAYS
CBS ~~CONNECTS~~,	~~10~~ 9	3-7 DAYS ~~CLIENT SETS~~
CELL SOFT	6	CLIENT SETS
NCNC	6/99	3 DAYS
TDS	5	2 DAYS (DISKETTE)

- AUXCO CLAIMS 3 DAYS IS "GUARANTEED," BANK ILL, STATES 5 DAYS IS CONTRACTUAL. CELL-SOFT, (TURNKEY) ALLOWS FOR MONTHLY, QUARTERLY, SEMI-ANNUAL & ANNUAL BILLING INTERVALS. TDS IS 2 DAYS AFTER RECEIPT OF DISKETTE.

CAPABILITIES EMPHASIZED

- FREE-FORM QUERIES WERE MADE ON "ADDITIONAL OR PARTICULARLY IMPORTANT CAPABILITIES OF YOUR SYSTEM." THE FOLLOWING RESPONSES WERE OBTAINED:

- AUXCO — WE CAN DO CYCLE BILLING ON ANY BASIS UP TO DAILY. OUR MKTG. SYSTEM INCLUDES PROFESSION, SIC, AUTO TYPE AND ZIP CODE. NON IMPACT PRINTING AVAILABLE W/IN 90 DAYS. WE PROCESS 60% OF WIRELINE BILLS, TOTAL OF 252,000 BILLS IN DEC. '85, 20 MILLION MESSAGES. PROCESSING BELL SOUTH, SW BELL, PACTEL, UNITED, CONTEL MOBILE & SNET. STRONG EMPHASIS ON CUSTOM REPORTING THRU EASYTRIEVE, DEVELOPING AUTOMATIC SWITCH INTERFACE.

- BANK ILLINOIS — PLAN TO AUGMENT STD. REPORTS WHICH INCLUDE BUSINESS OFFICE, AGENT TRIAL BALANCES, TAX, AGENT COMMISSION, REVENUE. CUSTOMER MICRO FUNCTIONS INCLUDE S.O., INQUIRY, BILL HISTORY & DETAIL, SOME MESSAGE DETAIL, PAYMENTS & ADJUSTMENTS. SYSTEM NEW IN APRIL 1985; STILL RUNNING SIDE-BY-SIDE. PROCESSING MOBILNET, SOME CELLULAR ONE, NY, CA & TAMPA RESELLERS, NO BELL WIRELINE, ALSO AKRON & BUFFALO. EMPLOYS 60-70 PERSONS DEVELOPING 3270 UNDER CICS (NO DATE) FOR COMMUNICATIONS.

- BELL ATLANTIC — ORDER ENTRY EMPHASIZES PROMPTNESS & FLEXIBILITY. RESELLERS CAN ACTIVATE #'S. CALLS PICKED AT MIDNIGHT, PROCESSED NEXT DAY, THEN TO THIRD PARTY FOR RENDERING ON NIP. AGENT COMPLETION BY CSR IMPORTANT FEATURE. REPORTS ARE ON UNIX WITH FILES EXTRACTED FROM MAINFRAME. HAVE 35 PROGRAMMERS. SYSTEM IS EXTENSIVELY MODIFIED OF AT&T ORIGIN. RATING VERY EXTENSIVE, INCLUDING OCC'S. EMPHASIZE FLEXIBILITY AND NEGOTIABILITY OF BUSINESS TERMS.

EMPHASIS, CONT'D

CELLTECH - CLAIMS HAS NOT LOST A CUSTOMER TO ANOTHER VENDOR. FLOPPIES ARE TRANSMISSION MEDIUM - STATES ONLINE NEEDED ONLY AFTER BILLING EXCEEDS 3-4% ACCOUNTS/MONTH. USES MICRO-DBMS FOR QUERY RETRIEVAL ON PC, CAN QUERY BY ACCOUNT #, EQUIPMENT SN, NAME, PHONE #. MARTIN MOORE DESIGNED SYSTEM. AMPS DESIGNER "WHY PAY FOR ONLINE IF YOU DON'T NEED IT?

CELLULAR BUSINESS SYSTEMS - EMPHASIZES THAT SOFTWARE IS TABLE-DRIVEN FOR GREAT FLEXIBILITY IN PROMOTION PRICING, FOR DISCOUNTS AND SPECIAL TARIFFS. HAS INTERFACE TO SWITCH. CLAIMS TO PROCESS 80% OF NON-WIRELINE; 35-40% OF MTC SUBSCRIBERS. HAS 38 FULL-TIME PROGRAMMERS WORKING ON ENHANCEMENTS. PROCESSING NON-WIRELINE IN TOP 10 MARKETS AND CONTEL UNITED & B.C. TEL WIRELINES NO BELLS CLAIMED.

CELLULAR SOFTWARE - EMPHASIZES POWERFUL TECHNOLOGY, EXPANDABILITY TO 100K ACCOUNTS/MONTH. CLAIMS TO HAVE ONLY "REAL TIME" BILLING SYSTEM TO 15 TRANSACTIONS PER SECOND FROM SWITCH. COMPLETELY INTEGRATED FROM LEAD CAPTURE THROUGH COLLECTION. R. VERY TECHNICALLY ORIENTED. WORKING ON OPTICAL DISK STORAGE. 20 PERSONS IN COMPANY, 12 IN DEVELOPMENT. CLAIMS STRENGTH IN CANADIAN MARKET. STATES 1.2 MILLION LINES OF CODE HAVE BEEN WRITTEN FOR SYSTEM SINCE START IN 1981 W/ SMR. FULLY DISTRIBUTED USING "PIPELINE" PROCESSORS. WOULD NOT DIVULGE NAMES OF USERS.

NCBC – EMPHASIZES AVAILABILITY OF OTHER PACKAGES INCLUDING G/L, A/R, A/P, PAYROLL, ABILITY TO DO CO-OP ACCOUNTING AS WELL AS CARRIER ACCESS BILLING AND CATV, EMPLOYS 77 PERSONS, SERVES 40 PHONE COMPANIES, RESELLS BURROUGHS GEAR BELOW BURROUGHS PRICES, OPERATES AS NON-PROFIT CO-OPERATIVE

TDS – STATES HAS TWO SMALL (1K BILL/MONTH) CELLULAR CUSTOMERS, EMPHASIZES MARKETING INFO ON SYSTEM INCLUDING DEMOGRAPHICS, CMH USING, WHERE HEARD OF, USING CYBER FORMAT FOR CLEARINGHOUSE, NEW SYSTEM FIRST OFFERED IN Q4 85, ALL NEW CODE EXCEPT RATING, PROCESSING FOR 57 SMALL WIRELINE S (BILLING) INCLUDING TDS TERRITORIES – EMPLOYS 90 IN OPERATIONS & 45 IN PROGRAMMING.

HUXCO PRICING

PROCESSING: $.50 PER #

$.015 PER MESSAGE, FIRST MILLION

$.0125 " " 1-2 MILLION

$.010 " " 2 MILLION PLUS

$.07 PER BILL PRINTING & STUFFING

$.01 PER FLYER STUFFED

$25.00/TAPE (1X, 200 AVG PER CLIENT)

$ 5K MONTHLY MINIMUM

$ 5K/CGSA START-UP CHARGE INCLUDES
1 WEEK TRAINING FOR 4-5 PERSONS AND
TARIFF LOADING INCLUDED.
COST FOR PAPER, ENVELOPES & POSTAGE
PROGRAMMING @ $56.25/HR
CONVERSION IS CLIENT RESPONSIBILITY OR CHARGED
AT $56.25 HR.

SOFTWARE: $500,000 FOR 99 YEAR LICENSE 1 SITE
$450,000 FOR SECOND SITE
$400,000 " THIRD SITE
FURTHER SITES NEGOTIABLE
INSTALLATION @ $150,000/SITE W/ 1YR WARRANTY
2ND YEAR MAINTENANCE @ 15% OF LICENSE FEE
SOURCE LICENSE, DOCUMENTATION INCLUDED

COMMENTS: 1 SITE LICENSED, 1 IN NEGOTIATION, CLAIMS
CROSSOVER TO LICENSE OCCURS @ 40-50K BILLS/MONTH
FOR IN HOUSE. 2000 BILLS NEEDED FOR PROCESSING IMPLYING
$2.50 PER BILL CHARGE. PAGING BILL PROCESSING AT
SAME RATES.

BANK OF ILLINOIS PRICING

PROCESSING; CHARGES PER # BUT WOULD NOT STATE RATE.
CLAIMS AVG COST/BILL IS $1.86 @ 4-5K BILLS/MO.
LOW COST = $1.25/BILL; HIGH COST IS $2.25
"MOST WITHIN $1.70 - $2.00 BILL"
SCALE SLIDES IN 5,000 BILL STEPS
MESSAGES @ $.01 FIRST MILLION
$.009 SECOND MILLION
$.25 PER SERVICE ORDER, NO VOLUME DISCOUNT
$ 50.00/ROAMER TAPE
$ RENDERING AND STUFFING INCLUDED IN RATES
AS IS STOCK AND ENVELOPES
RESTUFFING (TO 3 SHEETS) ALSO INCLUDED
CONVERSION CHARGES "HIGHLY DISCRETIONARY"
AT $60/HR
ON LINE CHARGES FOR MACHINE TIME, CUSTOMER PAYS "MACHINE CHARGES"
SOME TRAINING INCLUDED (NEGOTIABLE)

SOFTWARE: HAS NOT DONE ANY, NOT PRICED BUT WOULD BE WILLING TO DISCUSS. WRITTEN IN COBOL, WOULD RELEASE SOURCE CODE

COMMENT: RESPONDENT VERY RELUCTANT TO DISCUSS PRICING POLICY BUT COOPERATIVE IN ALL OTHER RESPECTS.

BELL ATLANTIC ENTERPRISES PRICING

PROCESSING: CHARGES PER ACTIVE #

10K #'S = $2.50 EACH

30K #'S = $2.25 EACH

50K #S = $2.00 EACH (E)

70 K #'S = $1.75 EACH (E)

90K + #'S = $1.50 EACH (E)

STANDARD ONLINE REPORTS INCLUDED

~~ALL OTHER DETAIL INCLUDED~~

TERMINAL EQUIPMENT & COMMUNICATION AT CUSTOMER CHOOSE

VAX AT BAE EXPENSE

SPECIAL REPORTS @ $200 CPU/MIN ON 3083J

PRINTING (TO 5 PAGES) AND STUFFING EXTRA AT $.025 PER IMAGE, INSERTION $.10

CONVERSION IS NEGOTIABLE (SEEKS MULTI-YEAR RELATIONSHIPS)

SOFTWARE: ONE TIME CHARGE $500-750K INCLUDES SOURCE

30% DISCOUNT FOR OBJECT CODE ONLY

MULTIPLE SITES @ $500 K EACH

$75 K/YR SOURCE MAINTENANCE CHARGE

OFFERS SOFTWARE ON A TRANSACTION BASIS OF $.50/BILL PRODUCED AS ALTERNATIVE

INSTALLATION & TRAINING NEGOTIABLE

NO SITES NOW LICENSED

30K BILLS/MONTH EXPECTED CROSS-OVER POINT

CELLTECH PRICING

CELL PROCESSING: CHARGES PER PHONE # AT $1.50
CALL DETAIL A $.25 PER # PLUS $.03
PER PAGE AT 42 CALLS PER PAGE
TYPICAL CHARGE $1.50 $2.00/BILL
NEW PRICING AS OF 3/1/86:
0-3K BILLS = $1.50
3-6K " = $1.45
6-10K " = $1.40
10K + " = $1.35
J.V.'S CAN COMBINE FOR DISCOUNT
TRAINING AT $25 HR (NEGOTIABLE)
$45/HR FOR PROGRAMMING

PAGING PROCESSING:
$.75 - $.50 AT 10K BILLS
NO RATING, FLAT RATE
WILL NEGOTIATE FOR HIGHER VOLUMES

SOFTWARE: FLAT RATE OF $250K
USAGE SENSITIVE ALTERNATE OF $.25 TO $.05 AT 25K BILLS
NO POLICY ON MAINTENANCE (NEGOTIABLE?)

CELLULAR BUSINESS SYSTEMS PRICING

PROCESSING: TYICALLY $3.00 PER # "EVERYTHING INCLUDED"
NO EXTRA CHARGE FOR CALL DETAIL, PRINTING,
STUFFING, MAINTENANCE
ONLINE ALSO INCLUDED (EX, TERMINALS, COMM.)
DISCOUNT ON VOLUME 3K BILLS = $3.30 BILL,
$1.90 = 40K BILLS
TRAINING FREE (3-4 DAYS) EXCEPT TRAVEL EXPENSE
$.50 PER ROAMING CALL, $30.00 MINIMUM
PROGRAMMING $50/HR
EXTRA CHARGES FOR ROAMING NOTICES & INT'L TOLL

SOFTWARE: TYPICAL $250K PER SITE
WILL NOT PROVIDE SOURCE CODE
MAINTENANCE 1.5%/MO. = $3750
DISCOUNTS ASSIBLE WITH SUBSCRIBER VOLUME
OF SITES PROPRIETARY
WRITTEN IN COBOL
SWITCH MANAGER (PC-BASED) LICENSES AT
$7-18K

INC.

CELLULAR SOFTWARE PRICING

TURNKEY ONLY: SYSTEM TO PROCESS 15,000 BILLS CONFIGURED AT $150-175K. $250K

SYSTEM WILL HANDLE 100K BILLS. CLAIMS TOTAL COSTS AS LOW AS $.50 BIL/MONTH.

OFFERS 25% DISCOUNT ON SECOND SITE, 27% ON THIRD, 30% ON FOURTH

CUSTOM ENHANCEMENTS $90-150 HR, 4 HR. MIN.

MINIMUM SYSTEM CONSISTS OF FILE SERVER, PROCESSOR, TERMINALS, TAPE, PRINTER AND SWITCH CONNECTOR. $75K HARDWARE; $75K SOFTWARE.

CLAIMS BREAKEVEN AT 2500 SUBSCRIBERS, EITHER CELL OR PAGE

"WILL NOT WORK WITH BIG WIRELINES" OVERHEAD, LEGAL AND SUPPORT COSTS TOO HIGH.

NORTH CENTRAL DATA COOPERATIVE PRICING

PROCESSING: $.24 PER ACCOUNT/MONTH FOR MAINFRAME PROCESSING.

$.025 PER RECORD MOBILE AIRTIME
$.015 TOLL RATING
$ 3K FOR CUSTOMER SITE SOFTWARE $45K AVG HARDWARE

$ 1.5K START UP INCLUDES ~~TRAINING~~ AND INSTALLATION
$ 100/PERSON FOR 3 DAYS TRAINING
$ 25/HR FOR PROGRAMMERS
$ 55/HR FOR ANALYSTS
$ 150/HR COMPUTER TIME (SPECIAL REPORTS)

PRICES SAME FOR PAGING OR WIRELINE TELEPHONE

SOFTWARE: SYSTEM AVAILABLE ONLY IN "HYBRID" PROCESSING MODE. LOCAL PACKAGE COSTS AS FOLLOWS:

INVENTORY = $3K
G/L = $2.5K
A/P = $2.5K
PAYROLL = $2.5K
TROUBLE REP. = $2.5K
VEHICLE ANAL. = $2.5K
UNCOLLECTABLES = $1.0K

TOS COMPUTING PRICING

PROCESSING: CHARGES ON PER # BASIS
$3.00 PER BILL W/ ONE # (ALMOST ALL)
SOFTWARE PROVIDED FOR PC
2-3 DAY TRAINING PROVIDED
TARIFF CHANGES FREE
DETAIL INCLUDED
SUPPLIES AT COST
NO CURRENT VOLUME DISCOUNT SCHEDULE
MACHINE TIME $1.50 CPU/SECOND (V-8)
PROGRAMMING $65/HR (ALWAYS QUOTE)

SOFTWARE: WOULD NOT QUOTE PACKAGE PRICE
50% DISCOUNT FOR MULTIPLE SITES
15%/YR. MAINTENANCE AFTER 1 YR
WILL PROVIDE SOURCE CODE

Monday 11:30

Mr. Mark Nielsen
Director of Marketing
312-440-8315
Cellular Business Systems

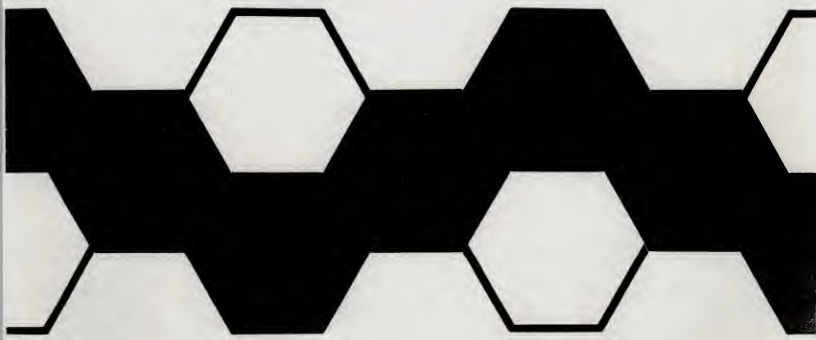
Friday 10:00 a.m.

Mr. Clyde Boyles
Director of Marketing
Cell tech

713-586-0110

CELLTECH INC.

PAGESELL



PAGING

CELLTECH'S PAGESELL billing and record keeping system was designed to provide the greatest amount of flexibility and ease for the paging industry.

The billing package includes either a manual or automated entry program. The system has the flexibility to support a customer base of any quantity.

The system is user friendly with fully detailed operating instructions. Sample forms and procedures are included in guidebooks and require no formal training.

The system has many inherent features that enable virtually any type of billing plan to be supported. All of the features and routines within the **PAGESELL** system are based upon actual field experience by members of **CELLTECH'S** staff.

THE PAGESELL BILLING PROGRAM OFFERS THESE FEATURES AND BENEFITS:

FEATURES

— Accommodates any service - digital - voice - display

— Accounts receivable capabilities including -
- posting of payments
- overdue notice routines

— Printing, paper and envelopes included

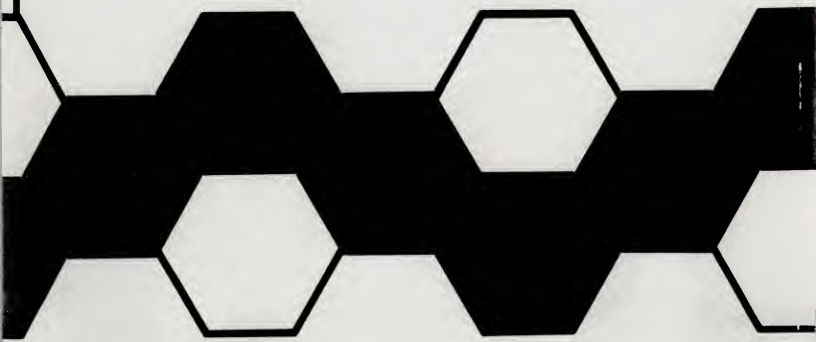
— Monthly billing summaries including -
- type of equipment
- amount of invoice
- tax information
- customer description

— Advance payment capabilities

— User generated bill inserts

BENEFITS

- complete records
- flexibility in billing
- easy to read bills
- multiple user billing
- reduction of billing costs
- accuracy and consistency in customer treatment
- advertising through bill inserts



CELLTECH INC.

SAMPLE - FRONT PAGE THAT IS RETURNED WITH PAYMENT. MAILING ENVELOPE DISPLAYS PROPER MAIL ADDRESS. RETURN ADDRESS SHOWS THRU RETURN ENVELOPE.

```
RCC INC
1492 COLUMBUS ST                    ACCOUNT NUMBER      00001234
CHICAGO IL  60600                     BILLING DATE      12-26-84


                    JOHN B  PAGER PRES
                    PAGER CORP
                    17150 BUTTE CREEK
                    SUITE 200
                    HOUSTON TX 77090


FOR PROPER CREDIT
PLEASE RETURN THIS          RCC INC
PAGE ALONG WITH             PO BOX 4444
PAYMENT, TO:                CHICAGO IL 60600


PAYMENT IS DUE BY 1-10-85
OUR NUMBER IS 713 586-0110          TOTAL AMOUNT DUE    392.00
```

SAMPLE - BILLING SUMMARY PAGE

```
BILLING SUMMARY      PAGER CORP                              PAGE 1


                                                          00001234
                                                          12-26-84
PREVIOUS BILL                  420.00
PAYMENTS RECEIVED              420.00CR
BALANCE                                      .00

MONTHLY SERVICE 12-26 THRU 1-25              392.00
OTHER CHARGES AND CREDITS                    .00

FEDERAL TAX                    .00
STATE TAX                      .00
MUNICIPAL TAX                  .00
TOTAL TAXES                                  .00

TOTAL AMOUNT DUE BY 1-10-85                  392.00

          OUR NUMBER IS 713 586-0110
```

* can accommodate usage sensitive service

SAMPLE ITEMIZATION PAGES

```
00001234          12-26-84                              PAGE 2

----------ITEMIZATION OF MONTHLY SERVICE----------

ITEM                                                   AMOUNT
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
DIGITAL DISPLAY PAGER                                   28.00
                          MONTHLY SERVICE TOTAL        392.00
```

SAMPLE ITEMIZATION PAGES

```
00001234          12-31-84                              PAGE 3

----------PAGER(S) IN SERVICE----------

NUMBER          DATE          NUMBER          DATE

000222222       12-01-84      0000999999      12-03-84
000333333       12-10-84      0000101010      12-13-84
000444444       12-10-84      0000111111      12-09-84
000555555       12-09-84      1000100000      12-12-84
000666666       12-03-84      1000110000      12-01-84
000777777       12-03-84      1000120000      12-19-84
000888888       12-04-84      1000130000      12-20-84
```

ABOUT CELLTECH INC.

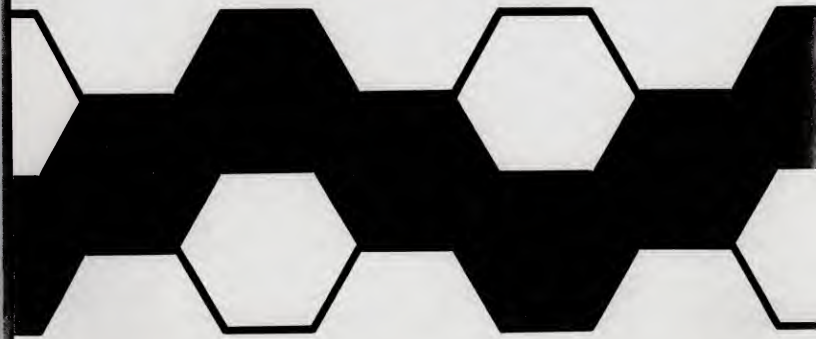
Service to the wirefree cellular industry.
That's the be-all and end-all of **CELLTECH INC.** That's what it provides, that's why it was founded. And to make sure it was the best service available, the company was formed around the best people in the cellular field.

The services **CELLTECH** and its people offer includes:

* A billing system that provides a fully documented user's guide for auto mated and manual systems for cellular, paging and SMR's.
* An innovative reseller cooperative concept.
* Human resource consultant and executive recruitment services for the telecommunications industry.
* Construction and pre-operational capabilities by the same people who spear-headed the AMPS trial in Chicago.
* Daily on-line operations management capabilities, including distribution and marketing techniques.

CELLTECH is a Houston based operation and its mission is to aid the industry in its efforts to achieve vitality and competitiveness.

17150 Butte Creek, Suite 200
Houston, Texas 77090
(713) 586-0110



V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: NORTH CENTRAL DATA COOPERATIVE
2. Company Address: _____
3. Company Telephone #: (701) 663-6511 EX 265
4. Contact Name: BRUCE WALTH
5. Contact Title: SENIOR SYSTEM COORDINATOR
6. SERVICES OFFERED: (check if yes) — MOTOROLA & GLENAIRE SWITCH TYPES
   a. Cellular Bill Processing: MOBILE AIRTIME BILLING
   b. Paging Bill Processing: USE EXISTING SOFTWARE - one file for both
   c. Cellular Software: could, but haven't for MOBILE.
   d. Paging Software: " " " " "
   e. Cellular Turnkey System: NO
   f. Paging Turnkey System: NO
7. For Processing:
   A. What type of mainframe processor is employed (make, model #) BGH 6800 Month-end cards
   have 2 - 1 for utilities, also cable water
   B. What operating system and utilities are used? MCP - DBMS - Monthly Maintenance in house
   C. For any on-line services, what terminal type & speeds are employed? 8000 lines 12000
   Sell them a BGH B-96 or B900 or B1900
   D. In terms of lines per month, what would you estimate is your current maximum processing capacity? MINICOMPUTER For Air = 100K FOR TELEPHONE MONTANA, N.D. S.D. WISCONSIN 100
8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes ✓ No ____ DK____

8A. How does this work? _____

INPUT

9. For each offering complete functions page "A":

SERVICE TYPE CELLULAR

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓			
2. Rates domestic toll	✓ -	TIERED 1.5¢ → 1.0¢ FOR OVERLOOK		
3. Rates international toll	✓ -	NO SWITCHES THEY KNOW OF HANDLE THIS		
4. On-line inquires for usage	✓	LOOKING AT LOCAL BGH		
5. On-line order entry	✓			
6. On-line inquires for orders	✓			
7. Complete on-line account inquiry	✓			
8. On-line cash entry (in person or mail payment: customer service office)	✓			
9. On-line adjustment to bills	✓			
10. Treatment processing for delinquent accounts	✓			
11. Lockbox processing	"BANK DEDUCTION"			
12. Call or airtime itemization	ON MICROFICHE ONLY		NO AIR TIME TOTAL ONLY NO	
13. Advance payment processing	✓			
14. Deposit accounting w/interest	✓			
15. Rate table maintenance	✓	customer does this		
16. Hotline support 7 days/wk.	8-5 central 5 days			
17. Traffic analysis	ON 6800	$120/MTSO	MDU'S, CCS	
18. Standard management reports	Billing Register - summaries, latus, carriers,			
19. Ad hoc management reporting	✓	VARIES WIDELY ✓	NO ADD'L FOR INHOUSE	
20. Repair tracking	✓	INHOUSE XTRA SOFTWARE		
21. Telephone # inventory	✓	Inquiry can handle alpha, ZIP, ADDRESS assigned & unassigned line inhouse		

open balance, delinquents run in house

2.

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment		Can poll remote for toll	✓	NO
23. Remote agent entry			✓	"
24. Sales lead tracking			✓	"
25. Billing on demand			✓	
26. Interface to G/L system			✓	NEXT YEAR
27. Equipment inventory linked to service order system	✓			
28. Equipment is linked to individual line			✓	
29. Inventory forecasting			✓	
30. Inventory bar code scanning			✓	
31. Inventory to G/L interface			✓	✓

32. Other, specify: G/L / A/R / AP / PAYROLL HAVE PACKAGES FOR THESE
CAPITAL CREDITS FOR COOPS - COE/CPR, CATV, CARRIER ACCESS
UNCOLLECTIBLES BILLING ON 6800

33. How many tax levels (GET #): 6 now could handle up to 99

34. What is your bill rendering interval? (# days) Depends on size 24 HRS for on line

35. If yes to any on-line type: X MISSION 60-70% of bills by express mail

What type of terminals are used?

→ 3 DAYS outside

2 companies ~~Company~~ have owners billing
13K +
10K +

Offers cycle billing but can't use

INPUT

PROCESSING

PRICING

Vendor NCDC Cell ✓ Page

1. What are the basic units for which charges are levied in your (cellular or paging) service offering? FOR BILL PRINTING

A. Billing element #1 (name, rate): Per Account on File – Tiered
24 & Per account/mo 20 accounts

B. Billing element #2: Software cost Billing $3000 Inventory 3K
G/L 2.5 AP = 2.5 PAYROLL 2.5 Trouble Reporting 2.5

C. Billing element #3: Vehicle Analysis 2.5 Unallocable 1K
Maintenance in penalty

MAY GO UP

D. Billing element #4: 1.5 ¢ per call for billrating up 1.75

E. Billing element #5: B 96 @ 35K 10M - 45 AVG

2. Are there separate charges for on-line services, if available? Yes ____ No____ DK____

A. If YES: How do these on-line charges work? Dial up @ 4,8 to 6800
1/2 hr to 3/4 hr connect to transmit video and to post process capture

3. For most processing services there is some form of volume discount plan.
How does your work? Pricing is only done on mobile start up fee $ 500
2.5 ¢ per record ~~rolled up~~ in mobile airtime

4. Are there charges for training? Yes ✓ No____ DK____ Amount/type Customers come to their site 100/PER PERSON FOR THREE DAYS, GETS 40 HRS FOR

5. What sort of software charges, if any, are involved with tariff changes? INSTALLATION FOR THE PACKAGE
A181 Tariffs are billed there P.O. Pro-Rate to members
Time & cost for special – 25/HR FOR PROGRAMMERS
55/HR ANALYSTS & COORDINATORS
4. 150/HR COMPUTER TIME EXPENSE PLUS ON HOURLY CHARGE

INPUT

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.: NONE

B. SVC #2, $ amt.: BUY HARDWARE AND RESELLING, LESS GP THAN BGH (BECAUSE OF VOLUME

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

PRICING PRICES THE SAME AS CELLULAR OR TELEPHONE

77 persons —

40 phone companies served

1966

$50 MEMBERSHIP FEE

5-6 involved in sales but only 1 MKTG

Scott GRILL - MKTG. MGR.

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

2. What operating systems and system software, such as DBMS's are required? _____

3. What are the main terms and conditions for leasing or purchasing this system? ____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software?_____

Hardware & Software:

2. On what systems is it known to run without recompiling? _____

3. What are the main terms & conditions of licensing? _____

4. What are the main costs involved in obtaining a license? _____

5. What costs are involved in obtaining a multiple site license? _____

6. What are your policies on software maintenance? _____

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

   A. If YES: What features or capabilities are scheduled for enhancement? _____

8. About how many sites are currently licensed? _____

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? _____

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: TDS COMPUTING

2. Company Address: _____

3. Company Telephone #: _____

4. Contact Name: ED WING -

5. Contact Title: MKTG DIR

6. SERVICES OFFERED: (check if yes)

a.	Cellular Bill Processing	✓
b.	Paging Bill Processing	under development, not until 4Q
c.	Cellular Software	not done yet
d.	Paging Software	" " "
e.	Cellular Turnkey System	YES HAVE DONE
f.	Paging Turnkey System	YES

7. For Processing:

A. What type of mainframe processor is employed (make, model #) AMDAHL V/6 in house PC AT on site on DB

B. What operating system and utilities are used? MVS XA LOTUS DB

C. For any on-line services, what terminal type & speeds are employed? Cell billing done at PC site Paging & billing are done VB

D. In terms of lines per month, what would you estimate is your current maximum processing capacity? PC-AT handles on LAN limited to 1 per site

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes____ No ____ DK____

8A. How does this work? Multi user for paging under development

9. For each offering complete functions page "A":

SERVICE TYPE Cellular

tape charge + per message

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓	yes, goes to clearinghouse		
2. Rates domestic toll	✓			
3. Rates international toll	✓			
4. On-line inquires for usage	NO MICROFICHE OR TELEPHONE			
5. On-line order entry	On PC			
6. On-line inquires for orders	✓			
7. Complete on-line account inquiry	ONP			
8. On-line cash entry (in person or mail payment: customer service office)	ON PC			
9. On-line adjustment to bills	ON PC			
10. Treatment processing for delinquent accounts	ONPC			
11. Lockbox processing	NO			could
12. Call or airtime itemization	Can do	off time charge		
13. Advance payment processing	✓			
14. Deposit accounting w/ interest	✓			
15. Rate table maintenance	✓	Conventionally		
16. Hotline support 7 days/wk.	8-4:30 5 days			
17. Traffic analysis	custom to site	T&M $65 per	CPU/SEC = $1.50	
18. Standard management reports	Bill recap, customer summary, invoice item. system status customer profile by income group, customer by SIC, lease report tel # control. Sale & commission, MIN & S.N. EAS Promotion			
19. Ad hoc management reporting	T&M - always quote			
20. Repair tracking			✓	
21. Telephone # inventory	✓			

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment			✓	
23. Remote agent entry	phone in		✓	
24. Sales lead tracking	capture referrals and maintained on P.C.			
25. Billing on demand			✓	
26. Interface to G/L system	✓	to their own G/L (in house)	- could on interface if need	
27. Equipment inventory linked to service order system	✓	type of phone, S/N		
28. Equipment is linked to individual line	✓			
29. Inventory forecasting			✓	
30. Inventory bar code scanning			✓	
31. Inventory to G/L interface	$ AMOUNTS DO			
32. Other, specify: Handles multiple rates per invoice, multiple #'s per customer				

33. How many tax levels (GET #): 5 levels

34. What is your bill rendering interval? (# days) 2 DAY FROM receipt

35. If yes to any on-line type: Send a diskette

What type of terminals are used? ______

→ MKTG INFORMATION: Sales, referrals, where they heard, demographics, why using, % of usage during driving time vehicle estimate, PC & MAINFRAME REPORTING

Cyber format for clearing house

Bell Atlantic, AUXCO, CBSI, CBIS

INPUT

PROCESSING

Small customer

PRICING

Vendor_____ Cell_____ Page_____

1. What are the basic units for which charges are levied in your (cellular) or paging) service offering?

A. Billing element #1 (name, rate): charging on per bill basis telephone #
$3.00 per bill (most cell # number) per month

B. Billing element #2: Customer charge P.C. soft is included

C. Billing element #3: Bill supplies and postage at cost

D. Billing element #4: looking at discount but don't would contract and negotiate if

E. Billing element #5: _____

2. Are there separate charges for on-line services, if available? Yes ____ No ✓ DK____

A. If YES: How do these on-line charges work?_____

3. For most processing services there is some form of volume discount plan.

How does your work? None
Conversion at 75 hr

4. Are there charges for training? Yes____ No ✓ DK____ Amount/type 2-3 days included

5. What sort of software charges, if any, are involved with tariff changes?

Free

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.:_____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

2. What operating systems and system software, such as DBMS's are required? _____

3. What are the main terms and conditions for leasing or purchasing this system? ____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software? COBOL, MF & PC

Hardware & Software:

2. On what systems is it known to run without recompiling? MF 43xx and up Anything MVS

3. What are the main terms & conditions of licensing? will provide source 15% of purchase price all updates. 57 small companies now Have regular Lifeline - small independent

4. What are the main costs involved in obtaining a license? _____

5. What costs are involved in obtaining a multiple site license? within same organization 1/2 of basic charge

6. What are your policies on software maintenance? 1st year warranty

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? Optional calling plans, multi, more

8. About how many sites are currently licensed? 2 licensed

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? 1K / per month 2 clients New in Q1 85 - Fresh code except for rating

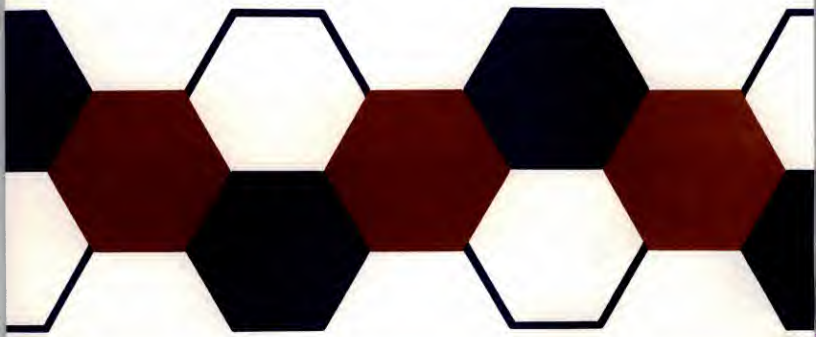
Very strong b.g. in people. One of first to offer cyber message format

90 person operations & payment $45

Tuesday 2/23/10

CELLTECH INC.

RECELL BILLING



CELLTECH INC.

RECELL BILLING SYSTEM

CELLTECH provides billing services through its subsidiary **CELLULAR DATA SYSTEMS, INC. CDS** has created a completely new and unique system that is versatile and responsive. It utilizes a locally based personal computer combined with a centralized, production – oriented computer system to render end – user bills.

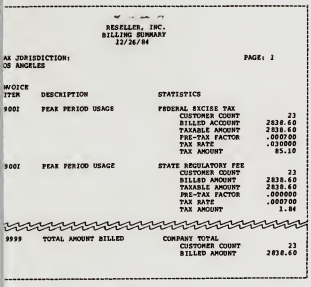
The system is called **RECELL** and it provides capabilities available only through a distributive processing environment.

RECELL SYSTEM CONCEPT

- The **RECELL** system has been designed to optimize the billing process by locating each data processing function where it can be best completed. Customer record files are maintained in an IBM PC, or equivalant terminal(s), at your location, while the actual rating, printing and mailing of the bills are done at CELLTECH'S Data Center.
- The Reseller has instant access to all customer records and avoids the high costs of data transmission to a central computer base. The job of end-user bill production is centrally handled at CELLTECH, providing the Reseller with cost advantages realized through economies of scale.
- **RECELL'S** basic concept is directed toward ease and flexible customer usage. The system can operate in single or multi – access terminal environments and can efficiently care for small or large quantity users.
- The billing program features manual and automated data entry methods. Fully detailed operating instructions are provided in user manuals, which allow you to implement and administer the system at your location. Sample forms and operating procedures are included in the manuals so that the costs of formal training are avoided.
- **RECELL** can accommodate the needs of Resellers, Paging, Carriers, and SMR's. Our system has many inherent features that allow virtually any type of billing plan or arrangement. All of the features and routines within the **RECELL** system are based upon actual field experience by members of CELLTECH's staff.

RECELL - more than

RESELLER SAMPLE REPORTS



RESELLER, INC.
BILLING SUMMARY
12/26/84

AX JDRISDICTION: PAGE: 1
OS ANGELES

INVOICE ITEM	DESCRIPTION	STATISTICS	
9001	PEAK PERIOD USAGE	FEDERAL EXCISE TAX	
		CUSTOMER COUNT	23
		BILLED ACCOUNT	2838.60
		TAXABLE AMOUNT	2838.60
		PRE-TAX FACTOR	.000700
		TAX RATE	.030000
		TAX AMOUNT	85.10
9001	PEAK PERIOD USAGE	STATE REGULATORY FEE	
		CUSTOMER COUNT	23
		BILLED AMOUNT	2838.60
		TAXABLE AMOUNT	2838.60
		PRE-TAX FACTOR	.000000
		TAX RATE	.000700
		TAX AMOUNT	1.84
9999	TOTAL AMOUNT BILLED	COMPANY TOTAL	
		CUSTOMER COUNT	23
		BILLED AMOUNT	2838.60

BILLING SUMMARY

USAGE SUMMARY

USAGE SUMMARY
AS OF 12/26/84

PAGE: 1

ACCESS NUMBER/ CUSTOMER ID	INVOICE ITEM CODE	DESCRIPTION	COUNT	USAGE MINUTES	RBV ENDS
312-555-4444	A9001	PEAK PERIOD USAGE	47	98.00	
12345678	A9002	OFF-PEAK PERIOD USAGE	2	2.00	37.24
	T9001	INTRASTATE TOLL	1	1.00	.44
	T9002	INTERSTATE TOLL	4	11.00	.36
					5.17
TOTAL	A9001	PEAK PERIOD USAGE	1227	2579.00	
	A9002	OFF-PEAK PERIOD USAGE	117	239.00	980.02
	T9001	INTRASTATE TOLL	1	1.00	52.58
	T9002	INTERSTATE TOLL	36	123.00	.36
					48.95

AGED BALANCES

RESELLER, INC.
AGED BALANCES
AS OF 12/26/84

PAGE: 1

CUSTOMER ID/NAME	CREDIT CLASS	STATUS	3 MONTH	2 MONTH	1 MONTH	CURRENT	TOTAL
12345678 JOHN B. CELLULAR	A	ACTIVE	.00	.00	.00	25.42	25.42
12345679 BENNY BOYE	C	ACTIVE	.00	50.00	50.00	15.59	115.59
1234578 CLYDE LOCKE	C	ACTIVE	.00	.00	.00	22.32CR	22.32CR
TOTAL			.00	50.00	50.00	18.69	118.69

ACCOUNTS RECEIVABLE / COLLECTION JOURNAL

RESELLER, INC.
ACCOUNTS RECEIVABLE/COLLECTION JOURNAL
AS OF 12/26/84

OPERATING COMPANY ID: 000111000110 PAGE: 1

BILLING DATE: 12/26/84

CUSTOMER ID	TELEPHONE NUMBER	C R	F A	PREVIOUS BALANCE	CURRENT MONTH	**TRANSACTION** DATE	AMT.	BALANCE DUE
12345678 JOHN B. CELLULAR	555-4444		A	10.00	215.42			225.42
PAGE TOTALS				10.00	215.42			225.42
						PAYMENTS		225.42
						VOUCHERS	.00	
GRAND TOTALS							.00	225.42
								225.42

REPORT CALCULATES ALL PAGE TOTALS

CELLTECH INC.

CELLTECH INC.

RECELL BILLING SYSTEM
BILL FORMATS
ACTUAL SIZE 4"x6½"

SAMPLE - FRONT PAGE THAT IS RETURNED WITH PAYMENT.
MAILING ENVELOPE DISPLAYS PROPER MAIL ADDRESS. RETURN ADDRESS SHOWS THRU RETURN ENVELOPE.

```
RESELLER INC                      CELLULAR NUMBER  312 555-4444
1492 COLUMBUS ST                   ACCOUNT NUMBER      12345678
CHICAGO IL 60600                     BILLING DATE      12-26-84


                  JOHN B  CELLULAR PRES
                  CELLULAR TRAVEL INC
                  17150 BUTTE CREEK
                  SUITE 200
                  HOUSTON TX 77090


FOR PROPER CREDIT        RESELLER INC
PLEASE RETURN THIS       1492 COLUMBUS ST
PAGE ALONG WITH          PO BOX 4444
PAYMENT TO               CHICAGO IL 60600


PAYMENT IS DUE BY 1-10-85
OUR NUMBER IS 713 586-0110          TOTAL AMOUNT DUE   225.42
```

SAMPLE - BILLING SUMMARY PAGE.

```
                                                          PAGE 1

BILLING SUMMARY     CELLULAR TRAVEL INC          312 555-4444
                                                     12345678
PREVIOUS BILL                1210.00                 12-26-84
PAYMENTS RECEIVED            1200.00
BALANCE                                  10.00

MONTHLY SERVICE 12-26 THRU  1-25        125.00
OTHER CHARGES AND CREDITS                25.00
AIRTIME USAGE CBARGES                    25.42
LONG DISTANCE CBARGES                    30.00

FEDERAL TAX                  5.00
STATE TAX                    3.00
MUNICIPAL TAX                2.00
TOTAL TAXES                              10.00

TOTAL AMOUNT DUE BY 1-10-85             225.42

          OUR NUMBER IS  713 586-0110
```

SAMPLE - ITEMIZATION OF MONTHLY SERVICE.
THE RECELL BILLING SYSTEM WILL AUTOMATICALLY ELIMINATE UNNECESSARY PAGES BY COMBINING PRINTING FROM OTHER PAGES IF POSSIBLE.

```
12345678          12-26-84    312 555-4444            PAGE 2
--------------BREAKDOWN OF AIRTIME USAGE CHARGES---------------
                          MINUTES     RATE            AMOUNT
PEAK PERIOD USAGE           236.0      .45            106.20
OFF-PEAK USAGE               48.0      .23             11.04

---------------ITEMIZATION OF MONTHLY SERVICE----------------

    ITEM                          QTY    RATE         AMOUNT
MOBILE UNIT                        1      90.00        90.00
CELLULAR BASIC SERVICE             1      35.00        35.00

          MONTHLY SERVICE TOTAL                        125.00
```

SAMPLE - ITEMIZATION OF OTHER CHARGES AND CREDITS.
INCLUDED ONLY WHEN APPLICABLE.

```
12345678       12-26-84    312 555-4444              PAGE 3

        ITEMIZATION OF OTHER CHARGES AND CREDITS

   ITEM                                              AMOUNT
PRORATE OF ADDITIONAL MONTHLY
SERVICE FROM 11-28 THRU 12-25                         25.00
INSTALLATION OF SPECIAL UNIT                         100.00
CREDIT FOR PREVIOUS OVER PAY-
MENT                                                -100.00

  OTHER CHARGES AND CREDITS TOTAL                     25.00
```

SAMPLE - ITEMIZATION OF LONG DISTANCE CALLS.
FORTHCOMING FEDERAL REGULATIONS WILL REQUIRE EQUAL ACCESS FOR ALL LONG DISTANCE CARRIERS. CELLTECH WILL ACCOMMODATE PRINTING AS NEEDED.

```
12345678         12-26-84      312 555-4444          PAGE  4

            ITEMIZATION OF LONG DISTANCE CHARGES

 DATE    TIME      CALLED PLACE      NUMBER      MINS    AMOUNT
12-03  12 01 AM  ROAMING WS       715 444-5555    23      12.42
12-13   1 25 PM  KEEPENA TX       713 555-4444     1       1.00
12-15   4 56 PM  WASH DC          202 555-6767    18      12.00

TOTALS INTERSTATE    25.42 INTRASTATE       .00          25.42
```

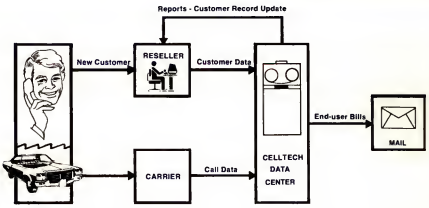
SAMPLE - ITEMIZATION OF AIRTIME CALLING.
THIS IS AN EXTRA COST OPTION THAT MOST RESELLERS MAY PROVIDE TO END-USERS TO INCREASE PROFIT MARGINS. RESELLERS RECEIVE THIS INFORMATION ON MICROFICHE TO ANSWER CUSTOMER INQUIRIES.

```
12345678        12-26-84    312 555-4444        PAGE XX
DATE  TIME  CALLED NO  C MINS   DATE  TIME  CALLED NO  C MINS
11-26 01 45  555-6666  O    4   12-21 21 24  343-3434  O   12
11-27 09 13  686-6868  P   12   12-22 07 58  474-4747  P    4
12-02 14 21  999-6666  P    8

    maximum number of calls per page is 42.

    summary information printed on last page only.

             P=                O=
MINUTES   PEAK XXXXXXXX   OFF-PEAK XXXXXXXX   TOTAL XXXXXXXX
AMOUNT            25.00                5.00           30.00
```

(C) COPYRIGHT 1984 CELLTECH INC.

RECELL BILLING CYCLE

The blend of locally maintained customer records and central data processing capabilities, enables **RECELL** to cost effectively handle the needs of the smallest Reseller or the largest Carrier.



CELLTECH's Data Center efficiently consolidates carrier call information, and customer data in minimal time. The bill is rendered to the end-user directly from the Data Center. You receive the same bill information, in the form of hard copy or microfiche, as well as summary data of the prior month's billing. And, your customer data base is automatically updated at the same time.

THE RECELL BILLING PROGRAM OFFERS THESE FEATURES:

- ★ Local Customer Records
- ★ Accounts Receivable routines, including:
  - posting of payments
  - overdue notice
  - disconnect
- ★ Advance payment
- ★ Deposit
- ★ Printing, paper, and envelopes included
- ★ Monthly billing summaries, including:
  - Billed Inventory
  - Tax Information
  - Aged Accounts
  - Call Record Reconciliation
- ★ Automated Bill Inserts

THE BENEFITS YOU GAIN:

- ★ Reduced billing costs
- ★ Computer accessed records
- ★ Easy-to-read bills
- ★ No data transmission costs
- ★ Lower training costs
- ★ Operational support
- ★ Advertising through bill inserts

just a billing system

ABOUT CELLTECH INC.

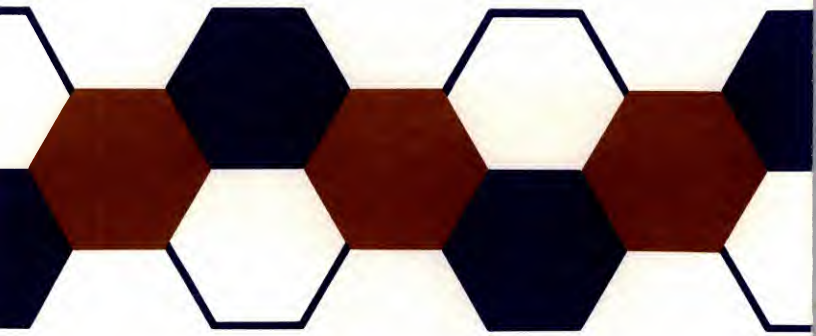
Service to the cellular industry.
That's the be-all and end-all of **CELLTECH INC.** That's what it provides, that's why it was founded. And to make sure it was the best service available, the company was formed around the best people in the cellular field.

The services **CELLTECH** and its people offer includes:

* A billing system that provides a fully documented user's guide for automated and manual systems for cellular, paging and SMR's.
* An innovative reseller cooperative concept.
* Human resource consultant and executive recruitment services for the telecommunications industry.
* Construction and pre-operational capabilities by the same people who spear-headed the AMPS trial in Chicago.
* Daily on-line operations management capabilities, including distribution and marketing techniques.

CELLTECH is a Houston based operation and its mission is to aid the industry in its efforts to achieve vitality and competitiveness.

17150 Butte Creek, Suite 200
Houston, Texas 77090
(713) 586-0110



2.5 hrs
2/3/86

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: CELLULAR SOFTWARE, INC.

2. Company Address: 10671 ROSELLE ST SAN DIEGO CA 92121

3. Company Telephone #: 619 458-9181 CONTACT @ (617) 536-6123

4. Contact Name: JOHN SIMEONE

5. Contact Title: PRESIDENT

6. SERVICES OFFERED: (check if yes)

a. Cellular Bill Processing ______

b. Paging Bill Processing ______

c. Cellular Software ______

d. Paging Software ______

e. Cellular Turnkey System ✓ EXCLUSIVELY

f. Paging Turnkey System ✓ DPT since 10/74

7. For Processing:

A. What type of mainframe processor is employed (make, model #) IBM - WILL PORT TO IBM AT TOKEN PASSING ARCNET WILL BE RETAINED (B, Q2 86)

B. What operating system and utilities are used? Data bus - extended ~~story~~ strings BASIC TYPE - C language compiler for Data bus. Working on interpreter for Pascal

RMS-LIKE ON AT

C. For any on-line services, what terminal type & speeds are employed? Based on ARCNET AT-Based file servers - work stations are DPT by May all ATs or XTs 12 MHZ AT'S(!)

D. In terms of lines per month, what would you estimate is your current maximum processing capacity? 5000 - 20 - 100K 12K subscribers

2.5 MIP 68020 by Charles River also used. RISC ARCHITECTURE FOR 9 MIPS Cellular

"Pipeline" processors

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes____ No ____ DK____

8A. How does this work?______

WROTE IBM COMPILERS FOR 13 yrs

INPUT

TOKEN PASSING IS THE WAY TO GO

9. For each offering complete functions page "A": ARC at 5.0 MBYTE
10.0 POSSIBLE

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓	Easy in real time cyclic billing up to 42 logical cycles		
2. Rates domestic toll	✓			
3. Rates international toll	Canada	Tariff design is implemented could but not doing		
4. On-line inquires for usage	✓	30 seconds to clear system		
5. On-line order entry	✓			
6. On-line inquires for orders	✓			
7. Complete on-line account inquiry	✓			
8. On-line cash entry (in person or mail payment: customer service office)	✓	posted real time		
9. On-line adjustment to bills	✓			
10. Treatment processing for delinquent accounts	✓	user based parameter for 27 classes of dunning 4 messages for each class		
11. Lockbox processing	✓	receive tapes from bank		
12. Call or airtime itemization	✓	user chooses format, toll, air, incompleted for ringing		
13. Advance payment processing	✓	S.O. driven		
14. Deposit accounting	✓	debit balance to outstanding		
15. Rate table maintenance	✓	PUT MICROWAVE conventional, DDS		
16. Hotline support 7 days/wk.	800	9-12 & 1-6 EST 5 DAYS - Maintenance Down-LINE CODE		
17. Traffic analysis	✓	look at call site by channels, On line diagnostic completed call service		
18. Standard management reports	✓	Trunk group - needs a special processor Trial balance, change summary to G/L		
19. Ad hoc management reporting	✓	collection reporting, others		
20. Repair tracking	✓	technical history, parts for paging		
21. Telephone # inventory	✓			

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment	✓	DMS 250 AUTOPLEX 10 8100		
23. Remote agent entry	✓	We do this best for 8 agents over 100's of [illegible] PDS or PVT MICRO, X.25 or dial up		
24. Sales lead tracking	✓	integrated		
25. Billing on demand	✓	yes, for 1 mo's or rental cars		
26. Interface to G/L system	Have own G/L ✓			
27. Equipment inventory linked to service order system	✓			
28. Equipment is linked to individual line	✓	absolutely		
29. Inventory forecasting			✓	
30. Inventory bar code scanning	~~[illegible]~~ can be done shortly w/ IBM		✓	
31. Inventory to G/L interface			✓	
32. Other, specify:	can do depreciation from inventory to G/L			

33. How many tax levels (GET #): 100 tax levels overall (limited to 6 jurisdictions)

34. What is your bill rendering interval? (# days) 30 DAYS on cyclic
12 Bills or 13/yr
Monthly, Quarterly, Semi or Annual

35. If yes to any on-line type:

What type of terminals are used? DPT 8220 2½ MBYTES

1000 charge types

INPUT

PROCESSING

PRICING

Vendor_____ Cell_____ Page_____

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

A. Billing element #1 (name, rate): _____

_____

B. Billing element #2: _____

_____

C. Billing element #3: _____

_____

D. Billing element #4: _____

_____

E. Billing element #5: _____

_____

2. Are there separate charges for on-line services, if available? Yes ____ No____ DK_____

A. If YES: How do these on-line charges work?_____

_____

3. For most processing services there is some form of volume discount plan. How does your work? _____

_____

_____

4. Are there charges for training? Yes____ No____ DK____ Amount/type_____

_____

5. What sort of software charges, if any, are involved with tariff changes?

_____

_____

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.:_____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell ✓ Page

1. What is the basic (minimum) hardware configuration for this system? File Server, processor + terminals, printers + tape + gear for switch gear 25-100K

2. What operating systems and system software, such as DBMS's are required?

1 Shot - 15,000 DMS cyclical 100K Bills, minimum

Software ~~AD~~ 75 150-175K cellular - $250K system

3. What are the main terms and conditions for leasing or purchasing this system? L $5250/mo his cost

1021 FACTOR = 5250/mo. Breakeven about $2500 subscribers

Float costs, bad debt, switch admin - people don't consider these

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? On site training free for install - fault tolerant by distribution of processing. They inventory sys. components

User maintained by engineering dept - 10% maintenance. 90 day warranty on sys. sliding scale 2.5%/month

5. Is there a discount for the acquisition of multiple systems? Yes ✓ No DK 1.5%/month $100/hr 75K system

6. If YES: what are typical terms? 25% second 3RD 27% up to 30 ~~#~~ sites

Remote into the ABC - N.C. # of lines sliding scale

7. Are there any significant upgrades scheduled for the next year? Yes No DK

A. If YES: What are the scheduled enhancements? Has seen costs as low as 50¢/Bill

Labor rates - $90 - 150/hr 4 hr minimum

Pagers 25 paging 5 clients - to be ... now

8. About how many systems are in use? 12 paging currently. NY 10K subscribers, 50 ~~[illegible]~~ Chicago, 20 - Texas

9. For what scale of operation - bills per month or perhaps lines - is the system best suited?

→ Biggest - 10K

Decided to go in house on M.F.

to Wireline - special case very tough 2 prime sites

Sales admin costs very high

6.

Requires 2 people for each wireline (post sales)

Direct charge $120K for a wireline

Problem w/trusting judgement → will not do a tape/batch system

→

INPUT

Total people = 12 in cellular development

↳ 20

Sole ~~proprietor~~ owner Ontario corporation

Very Big in Canada

20% of DPT in Canada thru this Canada

IBM Canada = $400 M NET PROFIT 2B revenue

No wireline -

50/50 Cass vs U.S.

Now wireline in Can bigger than wireline

Sold both sides

~~[illegible]~~ totally run by BOC in Canada

Wireline POTS -

allocation $2500 to legal costs $40K legal expenses

tells client this

Will not enter into development w/ wirelines

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software?_____

Hardware & Software:

2. On what systems is it known to run without recompiling? _____

_____

_____

3. What are the main terms & conditions of licensing? _____

_____

_____

4. What are the main costs involved in obtaining a license? _____

_____

_____

5. What costs are involved in obtaining a multiple site license? _____

_____

_____

6. What are your policies on software maintenance? _____

_____

_____

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? _____

_____

_____

8. About how many sites are currently licensed? _____

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? _____

_____

_____

Out of Toronto Education Conference
Suite 2206
20 Eglinton West
M4R 1K8
Toronto

C.S.I.

Incorporates cyclic billing 100K cellular

Q3 86 - net op sys mods

Defined quality "real time processing" Basic mode is billing in real time

JAN 81 - design started for "470's" in UHF

Heavy background in MOBILES

Economic benefits - won a bid to supply a UHF as a test bed

Selling

1.2 MILLION LINES OF CODE GENERATED BY 1985

~~Allows~~ No need for processing

Gets competitive at 2500 subscribers or DPT

~~Not~~ AT Purge 3.5:1 for performance

Spindle basis = 130 MBYTES -

AT File server 260 MBYTES

Archival - working on optical

25 trans/per sec can handle at switch

Immediate access to billing data - allows credit limits. Make roamer processing "trivial" - reduces float. Immediate customer

Interested in semi conductor ~~[illegible]~~ "disks" 1 user

3 ways - "Tee" "tape emulator" and to tape or spool file

X.25 output

Polling sequence - every ten minutes because of overhead

Accept individual line records or block

C.S.I.

Lead analysis
↓
S.O.
. Switch
↓
Billing
↓
collection

all integrated
real time - clamp on credit
Put on an intercept - call C.S.

current + 3 months history on line for billing
One is storing 12 months
Large customer in Connecticut - large client in charge, Texas

50% of page billing is equipment
Pager history by contract, SN "CAP CODE"

G/L up to a 1000 codes for charges & credits

"Elegant" telephone DBMS Multiple area codes
Paging supports multiple pagers phone #'s in multiple cities -

Sales, switch admin .021
- Can immediately add features -
phone #s "oldest used"

Scott has actual brochure

Cellular Software, Inc.

10671 Roselle St. San Diego, CA 92121
(619) 458-9181

Cellular Software, Inc.®

Serving the RCC's

Cellular Software, Inc. has been specializing in the RCC industry for nearly 15 years. For nearly ten of those years CSI has made available a Real-Time terminal based computer system. We serve customers from the East coast to the West coast as well as in Canada & CSI's systems are proven to be easy to learn.

We provide a reliable, modular, customized software package that operates as a Real-Time system for optimum service to the customer. To minimize costs, only equipment that is utilized is purchased; thus, eliminating large over-capacity mainframes. As a supplier in the RCC Industry CSI's software interfaces with any Paging Terminal or Mobile Telephone Terminal available as well as with new products as they are introduced to the industry.

SOFTWARE PROGRAMS

All CSI systems are written in a conversation mode. Editing of input is performed on a step-by-step basis rather than at the completion of an entry.

All of our software is designed to be user oriented and easily maintainable.

To insure that each user will get an equitable share of available CPU time, the system utilizes a "time-slice" method of allocating sytem resources.

Owing to the nature of the systems and the sensitivity of data, security is extremely important. CSI software, through the use of security codes, prevents unauthorized access & insures only specified individuals can use the programs. Also, security codes may be changed at intervals to insure that the highest level of security is maintained.

- Accounts Receivable — CSI's system is based on a balance forward accounts receivable; for RCC's this has proved to be the most efficient method of processing.
- Inventory Control — Our system uses a multi-indexed file allowing for retrieval of records in many different ways. The telephone files are virtually unlimited as to the number of telephone numbers on a unit.
- Pager Repair History and Parts Inventory — This enables you to maintain a history of customer complaints on each pager. Technicians can record repairs, parts used to repair, and cost of unit repair is also maintained.
- Lead/Agent Analysis — This system enables you to evaluate salesperson productivity and source of leads. Records of lead successes, connects, and returns are also easily maintained. Agent commissions as well as revenue and equipment sold by agent is at your fingertips.
- Accounts Payable/General Ledger — Reports may be generated by the user from the chart of accounts database, using a generalized report specification system. Accounts payable functions are completely integrated within the Ledger system.
- Payroll — This system is a multi-corporate, multi-company payroll capable of processing any payroll frequency.
- Fixed Asset System — Calculates depreciation by all standard methods and allows for entry and maintenance of the fixed asset data.

SYSTEM STUDY

As part of CSI's program package a study of each customer's system is conducted. At that time procedures are reviewed, and changes to screens or reports are noted for modification. As each screen report is finalized, a sample will be printed which will be included in the study.

Specifications are then developed for the conversion of customer data. The clerical collection of information for your new System is outlined and procedures recommended to begin the project.

At the completion of the System Study a copy is given to you for approval. This study then becomes the final specification of the System.

DATAPOINT, INC.®

CSI utilizes computer hardware manufactured by Datapoint, Inc.® of San Antonio, Texas. The integrated software packages are written in Databus,® a Datapoint® language.

Datapoint®'s design concept is called Local Area Network. This means various functions use multiple computers to create a communication network over which large amounts of information can be collectively processed.

The particular form of local networking used is called "ARC" for Attached Resource Computer.

Datapoint®'s ARC network provides a wide range of functions; reliable high speed performance, and a user interface that is simple and easy for you to use.

The increase in aggregate capability each time a unit is added is the primary advantage of the ARC. Also, high speed interconnection via coax allows units to be placed wherever they are needed.

Maintenance & Installation Contracts are available both domestically & internationally thru Datapoint®'s maintenance organization.

THE META 1001

CSI provides relatively inexpensive desktop CRT's for operator use. These CRT's are modified to our specifications and are designated the META 1001.

The META CRT is fully functional in the Datapoint®/CSI system and is warranted for 90 days.

Support of these units is available on a time/material basis as well as a Maintenance Agreement. Should you choose to place these units under Maintenance such agreements are available through CSI.

EDUCATION

To facilitate the independence of customer owned equipment CSI will train the individual responsible for the system. Preferably this person should have a Data Processing background.

For best results, the System Manager should be sent to the formal one week school on Disk Operating Systems Concepts taught by Datapoint Inc.®

We will then schedule classes to be conducted for the users of the system. With the cooperation of the System Manager, CSI will conduct these classes over a period of 2-5 days dependent upon the software you order.

All users as well as the System Manager will then be knowledgeable and capable of utilizing your system to its full potential.

MAINTENANCE/CUSTOMER SERVICE

As part of the total system price, CSI provides complete software maintenance for 90 days from date of installation.

Should application software problems develop, or either alterations or additions to the system be required, CSI offers a nationwide "800" number to support your needs.

In addition, following the 90 day warranty, CSI offers a Maintenance Agreement with customers to provide on-going service for a monthly fee. This agreement will provide for system updates periodically should Datapoint® alter the system configuration. Also CSI will review programs at specific intervals to insure that your system integrity is maintained. Such maintenance agreements are entered into for a period of one year and can be renewed annually.

Software Program Features

Accounts Receivable System

DAILY FUNCTIONS:
- Display an account
- Add new account
- Change information (file maintenance)
- Post adjustments
- Post payments
- Display controls by company
- Change account number
- Reprint statements
- Collection control
- Print cash receipts journal
- Invoice or work order entry
- Maintain pull bill file
- Display statement history

MONTHLY REPORTS:
- Aged trial balance & billing register
- Detailed statements
- Disconnect reason report
- P.O. renewal report

Inventory Control System

DAILY FUNCTIONS:
- Display equipment—by cap code, customer, telephone number
- Inventory of available telephone numbers by terminal
- Display equipment history
- Activate, deactivate numbers—includes automatic prorating to accounts receivable
- Change features
- File maintenance on telephone numbers

DEMAND REPORTS:
- Equipment by cap code
- Equipment by customer
- Equipment by agent
- Equipment by telephone number
- Equipment by history listing
- Print available telephone numbers

Repair History & Parts Inventory

DAILY FUNCTIONS:
- Display of equipment by serial number
- Release of equipment for service
- Maintain parts files

DEMAND REPORTS:
- On order parts
- Reorder list
- Parts inventory list by part number
- Parts inventory list by location

MONTHLY REPORTS:
- Parts inventory report
- Parts usage report
- Repairs by type of equipment
- Performance by technician

Lead Analysis

DAILY FUNCTIONS:
- Maintain lead source file
- Maintain solicitor file
- Maintain agent file
- Maintain salesperson file
- Entry and follow up of leads

DEMAND REPORTS:
- Listings of all maintenance files
- New lead form
- Open leads by agent, salesperson, unassigned leads, closed leads, pending leads, lost sales

MONTHLY REPORTS:
- Leads by agent
- Leads by solicitor
- Zone
- SIC code
- Lead source
- Lost sales

Agent Analysis

DEMAND REPORTS:
- New equipment added—new customers
- Additional numbers or features added—existing customers
- Terminations of service or reductions in service

MONTHLY REPORTS:
- Revenue recap by agent
- Reports of equipment similar to demand reports for the current cycle

Accounts Payable & General Ledger

DAILY PROCESSING:
- Maintain the general ledger file
- Maintain the auto-transaction file
- Maintain the vendor files
- Enter invoices
- Select invoices for payment
- Post transactions to the G/L
- Enter general ledger transfers
- Post auto-transaction records

DEMAND REPORTS:
- List corporate company file
- List chart-of-accounts
- List auto-transaction file
- Print financial statements
- List general ledger posting file
- List accounts payable posting file
- List general ledger history
- List vendor file
- List open invoices
- Check register
- Print checks

Payroll System

PERIOD PROCESSING:
- Employee file maintenance
- Standard hours entry
- Hash count entry
- Override hours entry
- Vacation entry
- Bonus entry
- Adjustment entry
- Deduction entry
- Payday update and restart
- Select earnings history

PERIOD REPORTS:
- Pre-update proof
- Entry status
- Checks
- Register
- Unapplied deductions
- Worksheets
- Update control sheet

MONTHLY REPORTS:
- Monthly register

QUARTERLY REPORTS:
- Year-to-date register
- State 941A
- Earnings history

ANNUAL REPORTS:
- W2's and summary report

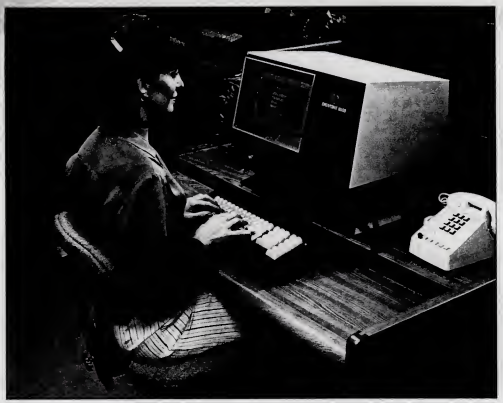
Fixed Assets

DAILY FUNCTIONS:
- Entry of fixed asset data
- Maintenance of fixed asset data

DEMAND REPORTS:
- Listing of asset data by serial number
- Listing of asset data by purchase date
- Calculation of cycle depreciation

Photograph provided by Datapoint® Corporation. All Rights Reserved.

This package introduces you to Cellular Software, Inc., an innovative leader in the Telecommunications Software market. CSI, with over a decade of proven performance, is directly credited with an unprecedented number of "firsts" associated with the Cellular and RCC industry. From the installation of the first computerized RCC billing service in 1970, and the development and installation of the first multiple processor RCC system, to the first interactive Mobile Call Processing system on the market, CSI has been serving our industry. Serving it with interactive Real-Time software packages that are reliable, flexible, and expandable to meet the fast-paced communications business world of today. As a result of our low priced, customized turnkey systems, CSI is extremely cost effective. We have met with widespread acceptance and presently have many systems operating across the U.S. and Canada. In fact, more mobiles and pagers have been tracked, billed and controlled by Cellular Software, Inc.'s systems than by any other non-Bell system in the world. In 1981 CSI anticipated the authorization of cellular service by the FCC and developed a series of turnkey software packages that support the complex sales, service, billing and Call Processing this emergent industry requires. To further accommodate this expanding market Cellular Software, Inc. has formed a subsidiary called INFOCELL, which will be responsible for, and exclusively support the Cellular Telephone market. This will enable us to specifically service and satisfy Cellular Operators as well as Resellers, while continuing to provide state-of-the-art systems to the radio common carriers and SMRS. Review the enclosed material and let us show you how CSI/INFOCELL can provide you with a customized, turnkey system that has the reliability and flexibility you want, with the expansibility you need. CSI/INFOCELL, an innovative leader in the Telecommunications Industry.



Cellular Software, Inc.®

Serving the SMRS

In recent years the Federal Communications Commission authorized Trunking via the Specialized Mobile Radio Service. The nature of Trunking provides a grade of service apart from land mobile dispatch as well as cellular telephone. As such, its needs are specific and subject to a high level of competition in the marketplace. Cellular Software, Inc. has made available a special software package to support this service.

We provide a reliable, modular, customized software package that operates as a Real-Time system for optimum service to the customer. To minimize costs, only equipment that is utilized is purchased; thus, eliminating large over-capacity mainframes. Further, CSI's software packages will interface to any Trunking terminal presently on the market.

Cellular Software, Inc. has proven operational programs in use today, for everything from large users to small businesses. We serve all aspects of the Telecommunications Industry.

SOFTWARE PROGRAMS

Cellular Software, Inc. systems are written in a conversation mode. Editing of input is performed on a step-by-step basis rather than at the completion of an entry. All of our software is designed to be user oriented and easily maintainable.

To insure that each user will get an equitable share of available CPU time, the system utilizes a "time-slice" method of allocating system resources.

Owing to the nature of the systems and the sensitivity of data, security is extremely important. CSI software, through the use of security codes, prevents unauthorized access & insures only specified individuals can use the programs. Also, security codes may be changed at intervals to insure that the highest level of security is maintained.

The basic SMR package includes an Accounts Receivable Inventory Control Program and a NNX Toll Billing System serving 800 units per site.

- Accounts Receivable/Inventory Control — The CSI system is based on a balance forward accounts receivable. The Inventory Control Program uses a multi-indexed file allowing far retrieval of records in many different ways.
- Mobile Call Billing System — Allows automated billing of data from all switches with RS232 serial outputs. The system utilizes inter as well as intra state tariff records. Programs also incorporate message unit accounting systems as used in metered call areas.
- Purchase Order/Parts Inventory System — Provides records of repair including technicians comments, time to repair and parts used are available as well as automatic purchase order records.
- Accounts Payable and General Ledger System — A chart of accounts encompassing multi-corporate, multi-divisional systems is used. Five levels of data specifications may be developed by the user. Accounts Payable functions are completely integrated within the Ledger system.
- Payroll — The payroll system is a multi-corporate/multi-company payroll capable of processing any payroll frequency.
- Fixed Asset System — Calculates depreciation by all standard methods.

SYSTEM STUDY

As part of CSI's program package a study of each customer's system is conducted. At that time procedures are reviewed, and changes to screens or reports are noted for modification. As each screen report is finalized, a sample will be printed which will be included in the study.

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The particular form of local networking used is called "ARC" for Attached Resource Computer.

Datapoint®'s ARC network provides a wide range of functions; reliable high speed performance, and a user interface that is simple and easy for you to use.

The increase in aggregate capability each time a unit is added is the primary advantage of the ARC. Also, high speed interconnection via coax allows units to be placed wherever they are needed.

THE META 1001

CSI provides relatively inexpensive desktop CRT's for operator use. These CRT's are modified to our specifications and are designated the META 1001.

The META CRT is fully functional in the Datapoint®/CSI system and is warranteed for 90 days.

Support of these units is available on a time/material basis as well as a maintenance agreement. Should you choose to place these units under maintenance such agreements are available through CSI.

EDUCATION

To facilitate the independence of the customer owned equipment CSI will train the individual responsible for the system. Preferably this person should have a Data Processing background.

For best results, the Systems Manager should be sent to the formal one week school on Disk Operating Systems Concepts taught by Datapoint Inc.®

We will then schedule classes to be conducted for the users of the System. With the cooperation of the System Manager, CSI will conduct these classes over a period of 2-5 days dependent upon software ordered.

All users as well as the System Manager will then be knowledgeable and capable of utilizing your system to its full potential.

MAINTENANCE/CUSTOMER SERVICE

As part of the total system price, CSI provides complete software maintenance for 90 days from date of installation.

Should application software problems develop, or either alterations or additions to the system be required, CSI offers a nationwide "800" number to support your needs.

In addition, following the 90 day warranty, CSI offers a Maintenance Agreement with customers to provide on-going service for a monthly fee. This agreement will provide for system updates periodically should Datapoint® alter the system configuration. Also CSI will review programs at specific intervals to insure that your system integrity is maintained. Such maintenance agreements are entered into for a period of one year and can be renewed annually.

Accounts Receivable System

DAILY FUNCTIONS:
- Display an account
- Add new account
- Change information (file maintenance)
- Post adjustments
- Post payments
- Display controls by company
- Change account number
- Reprint statements
- Collection control
- Print cash receipts journal
- Maintain pull bill file
- Display statement history

MONTHLY REPORTS:
- Aged trial balance & billing register
- Detailed statements
- Disconnect reason report
- P.O. renewal report

Inventory Control System

DAILY FUNCTIONS:
- Display equipment—by serial number, customer, telephone number
- Inventory of available telephone numbers by terminal
- Display equipment history
- Activate, deactivate numbers—includes automatic prorating to Accounts Receivable
- Change features
- File maintenance on telephone numbers

DEMAND REPORTS:
- Equipment by serial number
- Equipment by customer
- Equipment by agent
- Equipment by telephone number
- Equipment by history listing
- Print available telephone numbers

Mobile Call Billing

DAILY PROCESSING:
- Display all calls in ascending sequence
- Display all calls in reverse order
- Display today's calls
- Display calls on requested date
- Display next day calls
- Display calls on requested cycle day
- Print calls—based on the previous display command
- Display another telephone number
- Display total charges to date this billing cycle

DEMAND REPORTS:
- Listing of calls by telephone number for current or on-line historical period
- Statistical reports of air-time by channel and percentage in use
- Statistical reports of completed calls by channel and percentage complete

MONTHLY REPORTS:
- Detailed call reports by telephone number or customer
- Air-time utilization report by channel
- Completed call reports by channel
- User abuse report
- Reconciliation recap of land-line usage in standard telephone company sequence (i.e. line number, date, time).

Purchase Order & Parts Inventory

DAILY FUNCTIONS:
- Display of equipment by serial number
- Repairs to equipment
- Maintain parts files.

DEMAND REPORTS:
- On order parts
- Reorder list
- Parts inventory list by part number
- Parts inventory list by location

MONTHLY REPORTS:
- Parts inventory report
- Parts usage report
- Repairs by type of equipment
- Performance by technician

Accounts Payable & General Ledger

DAILY PROCESSING:
- Maintain the general ledger file
- Maintain the auto-transaction file
- Maintain the vendor files
- Enter invoices
- Select invoices for payment
- Post transactions to the G/L
- Enter general ledger transfers
- Post auto-transaction records

DEMAND REPORTS:
- List corporate company file
- List chart-of-accounts
- List auto-transaction file
- Print financial statements
- List general ledger posting file
- List accounts payable posting file
- List the general ledger history
- List vendor file
- List open invoices
- Check register
- Print checks

Payroll System

PERIOD PROCESSING:
- Employee file maintenance
- Standard hours entry
- Hash count entry
- Override hours entry
- Vacation entry
- Bonus entry
- Adjustment entry
- Deduction entry
- Payday update and restart
- Select earnings history

PERIOD REPORTS:
- Pre-update proof
- Entry status
- Checks
- Register
- Unapplied deductions
- Worksheets
- Update control sheet

MONTHLY REPORTS:
- Monthly register

QUARTERLY REPORTS:
- Year-to-date register
- State 941A
- Earnings history

ANNUAL REPORTS:
- W2's and summary report

Fixed Assets

DAILY FUNCTIONS:
- Entry of fixed asset data
- Maintenance of fixed asset data

DEMAND REPORTS:
- Listing of asset data by serial number
- Listing of asset data by purchase date
- Calculation of cycle depreciation

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Cellular Software, Inc./INFOCELL

Serving

Cellular Operators & Resellers

Early in this decade, the authorization of Cellular service was anticipated by CSI. At that time, we sought to develop software packages which would support the complex marketing, billing, and call processing this new service would require. Moreover, in keeping with the company objectives, CSI sought to do so in real-time.

The result is a truly impressive series of support programs designed to not only process billing, but provide critical marketing information that enables users to expand the success of this new grade of service.

The availability of a Real-Time system is extremely important. Of particular note are services similar to automobile rental agencies, where the advantage of immediate billing is an obvious plus. And, as is the case of all CSI products, our systems are modular and customized to offer only the equipment you need to operate the system. As your system grows, more equipment can then be added.

Cellular Software, Inc./INFOCELL, an innovative leader in the Cellular Telephone marketplace.

INFOCELL

In an effort to significantly support the needs of the emerging cellular marketplace CSI has formed a subsidiary division called INFOCELL. This division will work for and directly service all aspects of cellular activity including Operators as well as Resellers.

INFOCELL will support Cellular activity both domestically and internationally and will not be involved with other activities within the corporation.

It is intended that this corporate segmentation will more properly service the cellular market as well as allow for the support of other portions of the telecommunications market by the company.

SOFTWARE PROGRAMS

While a number of our Software packages are the result of initial development for the RCC marketplace, most are original and specifically designed for the Cellular operator. Such programs as Switch Administration, Service Order, and Reseller Sub-systems are unique to the cellular market.

All of our systems are written in a conversation mode and editing of input is performed on a step-by-step basis. All of our programs are designed to be user oriented and easily maintainable.

Owing to the nature of the systems and the sensitivity of data, security is extremely important. INFOCELL software, through the use of security codes, prevents unauthorized access & insures only specified individuals can use the programs. Also, security codes may be changed at intervals to insure that the highest level of security is maintained.

A list of the available programs include:

- Accounts Receivable/Inventory Control — The cellular system is based on a balance forward accounts receivable with the Inventory using a multi-indexed file allowing for retrieval of records in many different ways.
- Switch Administration — This system provides automatic programming of activations, deactivations, and changes to the MTSO. By using a queuing technique future activations may take place on a specific date. Also, by retransmitting all transactions from a selectable start point data can be restored in the event of an MTSO failure.
- Equipment Repair History & Parts Inventory — Users may maintain a complete history of their equipment problems, correction procedures, and parts used in the repair. Also included is a full multi-location parts inventory.
- Lead Analysis — This system allows for the entry & followup of all sales leads, enabling you to evaluate the productivity of your salespeople or agents. It also provides statistical reports to aid in targeting your advertising dollars, scheduling appointments, and determining the causes of unsuccessful sales.
- Service Order — Closed leads are then converted to service orders allowing the immediate assignment of telephone numbers. Installation of equipment and desired start of service dates are scheduled & all service related features are entered.
- Mobile Billing — All billing of cellular calls is automatically processed from all switches and detail call outputs are provided. The system incorporates message unit accounting as well as inter/intra state & international tariff billing.
- Agent Analysis — This program controlls commissioning of agents selling on your system. It produces information regarding revenue and quantity of equipment and allows for agents to use the lead and service order systems.
- Reseller System — This is a subsystem allowing for the grouping of call data by Reseller and telephone number for billing and transmittal to the Reseller. Such information may be in the form of printed reports, print image tape, or data tape.
- Fixed Asset System — Calculates depreciation by all standard methods and allows for the entry and maintenance of all fixed asset data.
- Accounts Payable/General Ledger — Here, a complex multi-corporate/multi-divisional chart of accounts system, with 5 levels of data specification can be developed by the user. Accounts Payable functions are completely integrated within the Ledger system.
- Payroll — CSI's payroll system is multi-corporate, multi-company and is capable of processing any payroll frequency.

SYSTEM STUDY

As part of CSI/INFOCELL's program package a study of each customer's system is conducted. At that time procedures are reviewed, and changes to screens or reports are noted for modification. As each screen report is finalized, a sample will be printed which will be included in the study.

Specifications are then developed for the conversion of customer data. The clerical collection of information for your new System is outlined and procedures recommended to begin the project.

At the completion of the System Study a copy is given to you for approval. This study then becomes the final specification of the System.

RESELLERS

Most often Resellers are concerned with equipment purchases and customer lists and overlook the critical item of billing. Here, by helping to maintain a healthy cash flow, INFOCELL can truly assist the Reseller.

By utilizing the Lead System, Resellers can keep close tabs on their clientele, sales efficiency, and target areas of concentration for merchandising. Our Service Order processing allows the Reseller to immediately assign telephone numbers to his customer and schedule all installations & service activations. In addition, Accounts Receivable and Inventory programs keep real-time records of payments, service, and bilings due.

Also, Resellers can utilize Payroll and General Ledger programs as well, should they be requested. The advantages of a Real-Time system in the highly competitive Reseller market gives the user an edge in providing timely service to his customers.

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The increase in aggregate capability each time a unit is added is the primary advantage of the ARC. Also, high speed interconnection via coax allows units to be placed wherever they are needed.

THE META 1001

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The META CRT is fully functional in the Datapoint®/INFOCELL system and is warranteed for 90 days.

Support of these units is available on a time/material basis as well as a Maintenance Agreement. Should you choose to place these units under maintenance, such agreements are available through INFOCELL.

EDUCATION

To facilitate the independence of customer owned equipment, INFOCELL will train the individual responsible for the system. Preferably this person should have a Data Processing background.

For best results, the Systems Manager should be sent to the formal one week school on Disk Operating Systems Concepts taught by Datapoint, Inc.®

We will then schedule classes to be conducted for the users of the system. With the cooperation of the System Manager, INFOCELL will conduct these classes over a period of 2-5 days dependent upon the software you order.

All users as well as the System Manager will then be knowledgeable and capable of utilizing your system to its full potential.

MAINTENANCE/CUSTOMER SERVICE

As part of the total system price, INFOCELL provides complete software maintenance for 90 days from date of installation.

Should application software problems develop, or either alterations or additions to the system be required, INFOCELL has a customer support staff that can support your needs.

In addition, following the 90 day warranty, INFOCELL offers a maintenance agreement with customers to provide on-going software maintenance coverage. This Agreement will provide for system updates periodically should Datapoint® alter the system configuration. Also INFOCELL will review programs at specific intervals to insure that your system integrity is maintained. Such maintenance agreements are entered into for a period of one year and can be renewed annually.

Cellular Software, Inc./INFOCELL
10671 Roselle St.
San Diego, CA 92121
Phone: (619) 458-9181

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Accounts Receivable System

DAILY FUNCTIONS:
- Display account
- Add new account (bypass service order)
- Change information (file maintenance)
- Post adjustments
- Post payments
- Display controls by company
- Change account number
- Reprint statements
- Collection control
- Print cash receipts journal
- Maintain pull bill file
- Display statement history

MONTHLY REPORTS:
- Aged trial balance & billing register
- Detailed statements
- Disconnect reason report
- P.O. renewal report

Inventory Control System

DAILY FUNCTIONS:
- Display equipment—by serial number, customer, telephone number
- Inventory of available telephone numbers by zone
- Display equipment history
- Activate, deactivate numbers—includes automatic prorating to Accounts Receivable
- Change features
- File Maintenance on telephone numbers

DEMAND REPORTS:
- Equipment by serial number
- Equipment by customer
- Equipment by agent or salesperson
- Equipment by telephone number
- Counts of available & in use telephone numbers
- Print available telephone numbers

Repair History & Parts Inventory

DAILY FUNCTIONS:
- Display of equipment by serial number
- Repairs to equipment
- Maintain parts files

DEMAND REPORTS:
- On order parts
- Reorder list
- Parts inventory list by part number
- Parts inventory list by location

MONTHLY REPORTS:
- Parts inventory report
- Parts usage report
- Repairs by type of equipment
- Performance by technician

Lead Analysis

DAILY FUNCTIONS:
- Maintain lead source file
- Maintain solicitor file
- Maintain agent file
- Maintain salesperson file
- Entry and follow up of leads

DEMAND REPORTS:
- Listings of all maintenance files
- New lead and service order form
- Open leads by agent, salesperson, unassigned leads, closed leads, pending leads, installation orders, lost sales

MONTHLY REPORTS:
- Leads by agent
- Leads by solicitor
- Zone
- SIC code

Mobile Telephone Call Processing

DAILY PROCESSING:
- Display all calls in ascending sequence
- Display all calls in reverse order
- Display today's calls
- Display calls on requested date
- Display next day calls
- Display calls on requested cycle day
- Print calls—based on the previous display command
- Display another telephone number
- Display total charges to date this billing cycle

DEMAND REPORTS:
- Listing of calls by telephone number for currunt or on-line historical period
- Statistical reports of air-time by cell-channel and percentage in use
- Statistical reports of completed calls by cell-channel and percentage complete

MONTHLY REPORTS:
- Detailed call reports by telephone number or customer
- Air-time utilization report by cell-channel
- Completed call reports by cell-channel
- User abuse repart
- Reconciliation recap of land-line usage in standard telephone company sequence (i.e. line number, date, time)

Agent Analysis

DEMAND REPORTS:
- New equipment added—new customers
- Additional numbers or features added—existing customers
- Terminations of service or reductions of service

MONTHLY REPORTS:
- Revenue recap by agent
- Reports of equipment similar to demand reports for the current cycle

Switch Administration

DAILY FUNCTIONS:
- New service activations
- Change in service
- Temporary disconnection of service
- Removal from service
- MTSO restaral feature

DAILY REPORTS:
- Hard copy log of all transactions
- Error queue listing

Service Order

DAILY FUNCTIONS:
- Entry of new services
- Changes to existing services
- Removal of services
- Automatic telephone number assignment
- Scheduling of equipment installation appointments

DAILY REPORTS:
- In-progress service order report
- Installation form for installs

Wholesale/Reseller Sub-System

DAILY FUNCTIONS:
- Bulk issue and return of number
- Activation and deactivation of number

DEMAND REPORTS:
- List numbers issued by Reseller
- List numbers deactivated by Reseller
- Current numbers on service
- Current charges for call billing

MONTHLY REPORTS:
- Reporting of call data by Reseller—hard copy
- Reporting of call data by Reseller—print image magnetic tape
- Reporting of call data by Reseller—data record magnetic tape

Fixed Assets

DAILY FUNCTIONS:
- Entry of fixed asset data
- Maintenance of fixed asset data

DEMAND REPORTS:
- Listing of asset data by serial number
- Listing of asset data by purchase date
- Calculation of cycle depreciation

Accounts Payable & General Ledger

DAILY PROCESSING:
- Maintain the general ledger file
- Maintain the auto-transaction file
- Maintain the vendar files
- Enter invoices
- Select invoices for payment
- Post transactions to the G/L
- Enter general ledger transfers
- Post auto-transaction records

DEMAND REPORTS:
- List corporate company file
- List chart-of-accounts
- List auto-transaction file
- Print financial statements
- List general ledger posting file
- List accounts payable posting file
- List the general ledger history
- List vendar file
- List open invoices
- Check register
- Print checks

Payroll System

PERIOD PROCESSING:
- Employee file maintenance
- Standard hours entry
- Hash count entry
- Override hours entry
- Vacation entry
- Bonus entry
- Adjustment entry
- Deduction entry
- Payday update and restart
- Select earnings history

PERIOD REPORTS:
- Pre-update proof
- Entry status
- Checks
- Register
- Unapplied deductions
- Worksheets
- Update control sheet

MONTHLY REPORTS:
- Monthly register

QUARTERLY REPORTS:
- Year-to-date register
- State 941A
- Earnings history

ANNUAL REPORTS:

V 1.1

2/3/86
1.5 hrs

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: CELLULAR BIZ SYSTEMS

2. Company Address: CHICAGO

3. Company Telephone #: (312) 440-8315

4. Contact Name: MARK NIELSEN

5. Contact Title: MKTG DIR

3:15 PM

6. SERVICES OFFERED: (check if yes)

a. Cellular Bill Processing	✓
b. Paging Bill Processing	Paging on cellular Bill
c. Cellular Software	✓
d. Paging Software	✓
e. Cellular Turnkey System	can arrange this
f. Paging Turnkey System	✓

7. For Processing:

A. What type of mainframe processor is employed (make, model #) IBM 43xx →

B. What operating system and utilities are used? VSE 1 or above
NO DBMS

C. For any on-line services, what terminal type & speeds are employed?
3270 under SNA

D. In terms of lines per month, what would you estimate is your current maximum processing capacity? no limit 100,000/month

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes ✓ No ___ DK ___

8A. How does this work? Offers paging in combination

9. For each offering complete functions page "A":

SERVICE TYPE________________

Bell Atlantic ↓ has power pool

old system $25 per tape +$30 + processing

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓	extra charge based on 50¢/record $30 min		
2. Rates domestic toll	✓			
3. Rates international toll	✓	add'l charge for multiple rating centers set up & maintenance		
4. On-line inquires for usage	✓ - invoice and usage			
5. On-line order entry	✓			
6. On-line inquires for orders	✓			
7. Complete on-line account inquiry				
8. On-line cash entry (in person or mail payment: customer service office)	✓			
9. On-line adjustment to bills	✓			
10. Treatment processing for delinquent accounts	✓	PER DUNNING NOTICE client sets parameters 30-60-90		
11. Lockbox processing	✓			
12. Call or airtime itemization	✓			
13. Advance payment processing	✓			
14. Deposit accounting / w interest	✓ yes/no	security w/interest will be improved		
15. Rate table maintenance	✓			
16. Hotline support 7 days/wk. std.	Help desk of account exec maybe 12 hrs			
17. Traffic analysis ?	optional Engineers	✓ CCS Erlang TOD, cell		
18. Standard management reports	✓	12 std reports revenue adjustments · Telephone inventory, cell rejection		
19. Ad hoc management reporting	✓	Thru request 50/HR		
20. Repair tracking	NO	NO WARRANTY MAINTENANCE		✓
21. Telephone # inventory	✓	✓		

call counts

INPUT

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
		Denver Roamer		
22. Switching office interface for automate line assignment	✓	separate charge	✓	
23. Remote agent entry	✓	Switch Mgr — to 18K		
24. Sales lead tracking		LICENSING PC. BASED PRODUCT	✓	✓
25. Billing on demand		No off cycle a final bill	✓	Q3 86
26. Interface to G/L system	Revenue report by line		✓	
27. Equipment inventory linked to service order system	Tracking of equipment is provided		✓	
28. Equipment is linked to individual line	✓			
29. Inventory forecasting			✓	
30. Inventory bar code scanning			✓	
31. Inventory to G/L interface	as in usage			

32. Other, specify: Switch mgr interface w/on line billing
Software is table driven, special promotions, discounts
great flexibility, wide tariff range

33. How many tax levels (GET #): 9

34. What is your bill rendering interval? (# days) 3-7 DAYS - sends unmatched calls to clients
30 DAYS normal multicycle accomodated

35. If yes to any on-line type:

What type of terminals are used? Accomodates multiple systems on same [illegible]
Switch - multiple cells

35-40% of all cellular subscribers

80% of non-wireline

5% unmatched

INPUT

PROCESSING

PRICING

Vendor_____ Cell_____ Page_____

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

   A. Billing element #1 (name, rate): ~~Charge per bill generated~~ Per Mobile # 3.00 per mobile including everything

   B. Billing element #2: No extra charge for call detail, none for stuffing Billing, maintenance

   C. Billing element #3: Switch not included, engineering, doesn't postage

   D. Billing element #4: No additional charge to use on line exc. commons.

   E. Billing element #5: Discount # of cities, volume, step (2-3K) 3.30 → $1.90 40K line

2. Are there separate charges for on-line services, if available? Yes ____ No ✓ DK_____

   A. If YES: How do these on-line charges work?_____

3. For most processing services there is some form of volume discount plan.

   How does your work? T&M for conversion

4. Are there charges for training? Yes ✓ No____ DK____ Amount/type Onsite and customer location 1st time out of pocket 3-4 DAYS

5. What sort of software charges, if any, are involved with tariff changes?

   T&M

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.:_____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

_____

2. What operating systems and system software, such as DBMS's are required? _____

_____

_____

3. What are the main terms and conditions for leasing or purchasing this system? ____

_____

_____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

_____

_____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

_____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

_____

_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

_____

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software? COBOL

Hardware & Software:

2. On what systems is it known to run without recompiling? _____

43XX →

3. What are the main terms & conditions of licensing? Source is not provided

Include maintenance + enhancements

4. What are the main costs involved in obtaining a license? Initial plus maint annual Typically $250K 1.5% maintenance $3750

5. What costs are involved in obtaining a multiple site license? Discounts depends # of subscribers

6. What are your policies on software maintenance? 1.5% maintenance

7. Are any significant upgrades scheduled within the next year? Yes ✓ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? _____

Changing quickly - written first in 1983

8. About how many sites are currently licensed? Proprietary

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? Articles in "Mobile Communication biz" - Costs over at 30-50K subscribers - Tariff complexity important Volatility high. Therefore recommend SVC

Over 38 programmers dedicated full time to embarrassing the system. Keeping pace is a full time job could use double that #

McCaw properties Portland, Seattle, Tacoma, Austin
Tolan Stanton head

NON WIRELINE IN TOP 10 MKTS

WIRELINE CENTEL, UNITED — splitting
BC-TEL

Out of country 15 Feb March 1

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: AUXCO
2. Company Address: MAITLAND, FL
3. Company Telephone #: 305-660-8400
4. Contact Name: JAMES THOMPSON
5. Contact Title: VICE PRESIDENT
6. SERVICES OFFERED: (check if yes)
   a. Cellular Bill Processing ✓
   b. Paging Bill Processing ✓ COMPUCELLULAR
   c. Cellular Software ✓ LICENSE
   d. Paging Software ✓
   e. Cellular Turnkey System CAN
   f. Paging Turnkey System
7. For Processing:
   A. What type of mainframe processor is employed (make, model #) IBM 43XX OR 370(AN-1)
   B. What operating system and utilities are used? DOS/VSE OR OS/MVS IMS-DB CICS VTAM COBOL -
   C. For any on-line services, what terminal type & speeds are employed? 3270 4.8 & 9.6 SNA, BISYNC
   D. In terms of lines per month, what would you estimate is your current maximum processing capacity? DECEMBER 252,000 cellular Bills → 20 MILLION MESSAGES "some paging" (smaller) 60% of wireline bills Bell SO SWBELL Pacific UNITED TELE CONTEL CROSBILE SNET
8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes ✓ No ____ DK____

8A. How does this work?

INPUT

9. For each offering complete functions page "A":

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓			
2. Rates domestic toll	✓			
3. Rates international toll	✓ manual			
4. On-line inquires for usage	✓			
5. On-line order entry	✓			
6. On-line inquires for orders	✓			
7. Complete on-line account inquiry	✓			
8. On-line cash entry (in person or mail payment: customer service office)	✓ and both			
9. On-line adjustment to bills	✓			
10. Treatment processing for delinquent accounts	✓			
11. Lockbox processing	✓			
12. Call or airtime itemization	✓ optional			
13. Advance payment processing	✓ security deposit & calculate interest & credit and payment			
14. Deposit accounting	✓			
15. Rate table maintenance	✓			
16. Hotline support 7 days/wk.	✓ account mgrs			
17. Traffic analysis	✓ ADHOC EASYTRIEVE			
18. Standard management reports	25 reports -	wall clock 100/hr S.O volumes, activities, billing reporting, volumes, message volumes		
19. Ad hoc management reporting	✓			
20. Repair tracking	✓ module			
21. Telephone # inventory	✓			

sets in svc
sets

INPUT

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment			✓	✓
23. Remote agent entry	at discretion of client		restrict reseller	
24. Sales lead tracking	MAKING INFO — EASY RIEVE			
25. Billing on demand			✓	
26. Interface to G/L system	INTERFACE to MSA			
27. Equipment inventory linked to service order system	Order is written, auto # assign, then Keep to S.O.			
28. Equipment is linked to individual line	✓	Inservice inventory associates		
29. Inventory forecasting	NO - could			
30. Inventory bar code scanning			✓	
31. Inventory to G/L interface	NO		✓	
32. Other, specify:				

33. How many tax levels (GET #): ~~Four~~ Six

34. What is your bill rendering interval? (# days) guaranteed 3 days

35. If yes to any on-line type: Cycle billing - 15th, 1st whatever up to daily billing Impact printed, will go to Xerox in 90 DAYS

What type of terminals are used?

cycle billing

→ Profession, SIC AUTOTYPE, ZIP

HQ Center: Maitland -

PROCESSING

PRICING

Vendor AUXTON Cell _____ Page _____

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

   A. Billing element #1 (name, rate): Startup per CGSA $5K load tariff.

   B. Billing element #2: Monthly Billing charge 50¢ per # (add up CGSA) MESSAGES 1.5¢ each per million bills 1.25 $.01 2 MILION

   C. Billing element #3: MINIMUM = $5K/mo.

   D. Billing element #4: Rendering, Printing & insertion .07 BMC Staff .01 $25/TAPE 1 time 200 tapes floating Amt, Lock Box

   E. Billing element #5: Billing BACKUP ON FICHE $5.00 $100

2. Are there separate charges for on-line services, if available? Yes ____ No ✓ DK ____

   A. If YES: How do these on-line charges work? _____

3. For most processing services there is some form of volume discount plan.

   How does your work? _____

4. Are there charges for training? Yes ____ No ____ DK ____ Amount/type 1 week for 4-5 included

5. What sort of software charges, if any, are involved with tariff changes?

   $450/DAY consulting

INPUT

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.: Forms cost - bills paper, treatment notice -

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

Conversion is client responsibility

no volume 200-300 client

Key enter is best

Conversion $450/DAY/per person

Charge for drop ship to another P.O.

TURNKEY PRICING - Have not done in company cellular

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

2. What operating systems and system software, such as DBMS's are required? _____

3. What are the main terms and conditions for leasing or purchasing this system? ____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

   A. If YES: What are the scheduled enhancements?_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software?_____

Hardware & Software:

2. On what systems is it known to run without recompiling? 43xx $\boxed{3083}$ 4361

3. What are the main terms & conditions of licensing? license = $500k
99 year Installation = 150k 2 wks, 5 person week training
1 DAY of operations 1 yr warranty source code, + documentation

4. What are the main costs involved in obtaining a license?
2nd year 15% yr of license

5. What costs are involved in obtaining a multiple site license? Discount
for multiple 10% up to 3
Everything negotiable

6. What are your policies on software maintenance?

7. Are any significant upgrades scheduled within the next year? Yes ✓ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement?
Interface to switch will be automatic

8. About how many sites are currently licensed? 1 site licensed, 1 in negotiation

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? 2000 #s on up for processing
40-50k bills to go in house

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: BANK OF ILLINOIS

2. Company Address: 100 W. UNIVERSITY

CHAMPAIGN ILLINOIS

3. Company Telephone #: (217) 351-6580

4. Contact Name: TERRY BOND

5. Contact Title: VP MKTG DIRECTOR (FUTURE VP)

6. SERVICES OFFERED: (check if yes)

a. Cellular Bill Processing	✓
b. Paging Bill Processing	✓
c. Cellular Software	✓ – not in use at any of the
d. Paging Software	✓
e. Cellular Turnkey System	✓
f. Paging Turnkey System	✓

7. For Processing:

A. What type of mainframe processor is employed (make, model #) IBM 4341 will upgrade 3081 or 3083

B. What operating system and utilities are used? Transition VSE under VM to MVS 2 years for whole operation

C. For any on-line services, what terminal type & speeds are employed? UNIX TO, NC 005, HS 005 Skytone of two step

D. In terms of lines per month, what would you estimate is your current maximum processing capacity? 308X to limit number

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes ✓ No ___ DK ___

8A. How does this work? ___

9. For each offering complete functions page "A":

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓	$ 25 tape		
2. Rates domestic toll	✓			
3. Rates international toll automated	✓			
4. On-line inquiries for usage	✓			
5. On-line order entry	✓			
6. On-line inquires for orders	✓			
7. Complete on-line account inquiry	✓			
8. On-line cash entry (in person or mail payment: customer service office)				
9. On-line adjustment to bills	✓			
10. Treatment processing for delinquent accounts	MF to PC INFUTURE OPTIONAL ✓			
11. Lockbox processing	✓			
12. Call or airtime itemization	✓	Printing of charge detail		
13. Advance payment processing	✓			
14. Deposit accounting	✓	Deposit interest & refund don't produce check		
15. Rate table maintenance	✓			
16. Hotline support 7 days/wk.	5 days			
17. Traffic analysis std reports	NO			
18. Standard management reports	NO			
19. Ad hoc management reporting	NO - demand basis			
20. Repair tracking trouble reporting	✓	no specific plans		
21. Telephone # inventory in micro	✓			

RJE

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment	NO	ADVICE FROM S.O. Not Standard		could do this but client
23. Remote agent entry	NO			✓
24. Sales lead tracking	NO			
25. Billing on demand	NO			
26. Interface to G/L system	YES/NO			end of 86
27. Equipment inventory linked to service order system	NO EQUIPMENT			distant future
28. Equipment is linked to individual line	✓	✓	✓	
29. Inventory forecasting	✓		✓	
30. Inventory bar code scanning	✓		✓	
31. Inventory to G/L interface			✓	

32. Other, specify: _____

33. How many tax levels (GET #): Theoretically no limit - 6 different taxes ~~cut back from 12 codes~~

34. What is your bill rendering interval? (# days) contractually 5 DAYS

35. If yes to any on-line type:

What type of terminals are used? _____

PROCESSING

PRICING

Vendor_____ Cell_____ Page_____

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

A. Billing element #1 (name, rate): Recurring billing
Per customer statement

B. Billing element #2: Per message 1st million 1.0 2nd .9

C. Billing element #3: Per S.O. Activity (Per Order) independent of volume - .25 per S.O.

D. Billing element #4: _____

E. Billing element #5: _____

2. Are there separate charges for on-line services, if available? Yes ____ No____ DK_____

A. If YES: How do these on-line charges work?_____

3. For most processing services there is some form of volume discount plan.

How does your work? _____

4. Are there charges for training? Yes____ No____ DK____ Amount/type_____

5. What sort of software charges, if any, are involved with tariff changes?

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.: _____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

Contact customers

- will down load in future -

update 3 or 4 since April 84

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

_____

2. What operating systems and system software, such as DBMS's are required? _____

_____

_____

3. What are the main terms and conditions for leasing or purchasing this system? ____

_____

_____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

_____

_____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

_____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK___

A. If YES: What are the scheduled enhancements?_____

_____

_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

_____

Hardly done this

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software? would license for own use

Hardware & Software: maintenance optional would skip source

2. On what systems is it known to run without recompiling? all COBOL

Pre-agreed -

3. What are the main terms & conditions of licensing? _____

4. What are the main costs involved in obtaining a license? _____

5. What costs are involved in obtaining a multiple site license? _____

6. What are your policies on software maintenance? _____

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? _____

8. About how many sites are currently licensed? _____

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? _____

IBM PC's

Convergent Megatrame and Mightytrame

HL105

4181 - 382 [illegible] 6300 -

GTE MOBILNET HOUSTON nine miles

HOUSTON

TAMPA

Cleve As of Jan 1 Standalone Subs

Irvine BANK ILLINOISCO

Austin 60-70 people

S.F.

Portland

Reseling in Santa Pastel

Akron

Buffalo

Metro Mobil CTS - [illegible]

up to 12 phoenix

Alba

Tucson

El Paso

New - Cellular One - Portland

Resellers in New York, LA, TAMPA

No Bell Wireline

"SMR" - Billing - Single MIAMI, TAMPA, PHOENIX, SAN ANTONIO

Pricing scheme same as for telcos -

10 #s on 1 Bill requires 11 customer records
Per #
Use Guide file for message →

Cost per bill avg ← avg $1.70 - $2.00
One at $2.25 lowest $1.25
avg $1.86 — 4-5k bills and/

per 5,000 increments

Rumor or reseller $50

Includes bill stock IMPACT PRINTING

Files on line

No Flat conversion fee
~~Labor~~, Travel, out of pocket
Time charges optional
~~Charg~~ $60/HR Labor - highly discretionary

O.L. will be machine time

Not cutting tapes doing all mailing
- stuffing is free up to 3 inserts -

3270's under CICS "on line" under development

Functions on customer MICRO
S.O.
Inquiry
Bill History & Detail
Not all message detail
Up to daily
Dial up Sync 4.8
Enter payments and adjustments

20 independent clear carrier accounts

accept in & roamer tapes

Treatment processing - in house end of '86
additional software

GTE MOBILNET - 3-4%

Rate table maintenance - incorporate tariff
Handles variable - T&M

Customer support - toll 7AM EASTERN to 5 PM Pacific

Standard reports - will be adding to this
Business Office Reports - up Aged trial
balance, tax, agent commission, station count
report, Revenues Adjustments register
Auditable

R.E.A. could do this w/ limitation as client needs. Selectively enable could do this w/ Not yet

G/L Journalize cash, adjustments, deposits, etc

Tape or XMIT JOURNAL TO G/L - specification
Doing their own G/L late '86

32. other - software on customer site is transportable
RM - COBOL "RUN TIME" MODULE
Ryan McFarlan Single AT to CONVERGENT MEGAFRAME
"Soft coded Screens" - designed & programmed
own DBMS for MICROS 1/2 hr to change
screen "Design your own screen"
- Customers training on this -

Customer specifies billing cycle

New System April 85
Running 2 systems old from early system
Data entry of S.D.S
AMA TAPES handles - Gentle MTSO

Bell Atlantic
Enterprises

Mr. Robert Beran

Mgr. Financial Planning

609-987-6024

main # 201-953-2200

Wednesday 12:00

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: Bell Atlantic Enterprises

2. Company Address: _____

3. Company Telephone #: (609) 987-6024 or 6200 for R.J

4. Contact Name: _____

5. Contact Title: RON JOHNSON MKT MIR EX 6200 BOB BERAN FIN PLNG DIR

6. SERVICES OFFERED: (check if yes)

   a. Cellular Bill Processing ✓

   b. Paging Bill Processing NO WAIVER

   c. Cellular Software ✓

   d. Paging Software YES

   e. Cellular Turnkey System YES

   f. Paging Turnkey System YES - NEGOTIATING AS AN IBM VAR
   Mueller Billing

7. For Processing:

   A. What type of mainframe processor is employed (make, model #) ON LINE CUSTOMER ORDER, SERVICES ADJUSTMENTS
   IBM - MESSAGE RATING ON VAX LINE TOWARDS ON LINE RATING FOR AGENT - ALC POWER Q2, Q4

   B. What operating system and utilities are used? MVS-XA-IMS
   VMS - PORTABLE TO UNIX

   C. For any on-line services, what terminal type & speeds are employed?
   3270 IBM ASYNC FOR IBM PC activation - CSR selects

   D. In terms of lines per month, what would you estimate is your current maximum processing capacity? NO, UNIQUE IN THAT IT WILL

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes____ No ✓ DK____

8A. How does this work? Paging is separate Omnyx micro - MICROVAX - UNIX

9. For each offering complete functions page "A":

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓			
2. Rates domestic toll	✓			
3. Rates international toll	✓			
4. On-line inquires for usage	✓			
5. On-line order entry	✓	VAX		
6. On-line inquires for orders	✓	VAX		
7. Complete on-line account inquiry	✓	goback 12 months payment, usage 3 month		VAX
8. On-line cash entry (in person or mail payment: customer/service office)	✓			
9. On-line adjustment to bills	✓ MVS	TOLL RECORD "ONLY" PRE-BILL & BILL		
10. Treatment processing for delinquent accounts	✓ 2 levels only	options on aging		
11. Lockbox processing	✓			
12. Call or airtime itemization	✓			
13. Advance payment processing	✓			
14. Deposit accounting w/interest	✓	automatic in dance		
15. Rate table maintenance	✓			
16. Hotline support 7 days/wk.	2 types - 800 Application 8.5 MF			
17. Traffic analysis standard	✓	Cell site usage report wants to develop traffic for MICROVAX		Perhaps TANDEM IN FUTURE
18. Standard management reports	✓	Revenue by cell site, A/R 30/60/90 Billing control # of min, peak opp peak # of customer		
19. Ad hoc management reporting		$65/hr includes CPU		
20. Repair tracking			✓	NO
21. Telephone # inventory	✓			

extracts of critical file to VAX
Will use Telenet

INPUT

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment	✓			
23. Remote agent entry	✓			
24. Sales lead tracking			✓	
25. Billing on demand	has cycle		✓	
26. Interface to G/L system			✓	Possibly Q4 86
27. Equipment inventory linked to service order system			✓	
28. Equipment is linked to individual line				
29. Inventory forecasting			✓	
30. Inventory bar code scanning			✓	
31. Inventory to G/L interface			NO	

FOR AGENTS STANDALONE IBM PC Repair HISTORY, EQUIPMENT INVENTORY, Lead tracking
FOR CARRIER - ON THE

32. Other, specify: Order entry emphasizes flexibility & productivity - security emphasized Inquiry only
"Agent completion by CSR" Agent can look at DB as wanted

33. How many tax levels (GET #): 5 basic plus other

34. What is your bill rendering interval? (# days) 4

35. If yes to any on-line type:

What type of terminals are used?

Has NSF, customer profile on IBM

Resellers can activate #'s. IMPT, IN THE FUTURE

→ Generates charges directly to reseller

Tables for order entry - standard charges in tables - no manual needed

→ Calls go into rating at midnite, process next day

4 days 3RD PARTY laser no envelope stuffing Amxco does same printing for Bell

INPUT

PROCESSING

PRICING

Vendor BAE Cell ✓ Page

1. What are the basic units for which charges are levied in your (cellular or paging) service offering? "Very simple"

A. Billing element #1 (name, rate): # of active # $2.50 → (10K) $1.50 30K=$2.25 Independent of printing

B. Billing element #2: On line is included Detail is included

Not interested in 1 year

C. Billing element #3: Printing 5pages + envelope -

D. Billing element #4: VT100, 3270, IBM 3150 so are communication Carrier 9.6 30K requires second terminal RJE - MOHAWK

E. Billing element #5: NON PRODUCTION REPORTS $200 CPU/MIN 3083J Special user reports

2. Are there separate charges for on-line services, if available? Yes ___ No ✓ DK ___

A. If YES: How do these on-line charges work?

3. For most processing services there is some form of volume discount plan. How does your work?

4. Are there charges for training? Yes ___ No ✓ DK ___ Amount/type ___

5. What sort of software charges, if any, are involved with tariff changes?

Commission is negotiable -

Message rating systems handle local rates, LD, SPRINT, MCI

→ Rating of AIRTIME IS IMBEDDED IN IBM BILLING TIERED, ALLOWANCE, GROUP. HAVE MANY.

NEGOTIATABLE

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.:_____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

2. What operating systems and system software, such as DBMS's are required? _____

3. What are the main terms and conditions for leasing or purchasing this system? ____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

SOFTWARE PRICING

Cell ✓ Page

1. In what language is the software? COBOL - BILLING Partly COBOL 8'C"

Hardware & Software:

2. On what systems is it known to run without recompiling? 3083 E & UP and other IBM 4341

3. What are the main terms & conditions of licensing? Will provide source object license - no source - Multiple site is negotiable

4. What are the main costs involved in obtaining a license? NO FIRM PRICE TRANSACTION BASIS $0 ¢ BILL ONE ¢ $500-750 ONE K plus Discount OBJECT LICENSE 75K/yr for MAINTENANCE

5. What costs are involved in obtaining a multiple site license? Flat rate about 500K

6. What are your policies on software maintenance? OBJECT LICENSE 30%

7. Are any significant upgrades scheduled within the next year? Yes ✓ No ___ DK ___

A. If YES: What features or capabilities are scheduled for enhancement? MORE FLEXIBILITY IN WAY 10th minute billing, FRAMEWORK FOR VOLUME SENSITIVE UPGRADE USER INTERFACE

8. About how many sites are currently licensed? NO

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? 30K # S' perhaps [illegible]

9. For each offering complete functions page "A":

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming				
2. Rates domestic toll				
3. Rates international toll				
4. On-line inquires for usage				
5. On-line order entry				
6. On-line inquires for orders				
7. Complete on-line account inquiry				
8. On-line cash entry (in person or mail payment: customer service office)				
9. On-line adjustment to bills				
10. Treatment processing for delinquent accounts				
11. Lockbox processing				
12. Call or airtime itemization				
13. Advance payment processing				
14. Deposit accounting				
15. Rate table maintenance				
16. Hotline support 7 days/wk.				
17. Traffic analysis				
18. Standard management reports				
19. Ad hoc management reporting				
20. Repair tracking				
21. Telephone # inventory				

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment				
23. Remote agent entry				
24. Sales lead tracking				
25. Billing on demand				
26. Interface to G/L system				
27. Equipment inventory linked to service order system				
28. Equipment is linked to individual line				
29. Inventory forecasting				
30. Inventory bar code scanning				
31. Inventory to G/L interface				
32. Other, specify: _____				

33. How many tax levels (GET #): _____

34. What is your bill rendering interval? (# days) _____

35. If yes to any on-line type:

    What type of terminals are used? _____

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software?_____

Hardware & Software:

2. On what systems is it known to run without recompiling? _____

_____

_____

3. What are the main terms & conditions of licensing? _____

_____

_____

4. What are the main costs involved in obtaining a license? _____

_____

_____

5. What costs are involved in obtaining a multiple site license? _____

_____

_____

6. What are your policies on software maintenance? _____

_____

_____

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? _____

_____

_____

8. About how many sites are currently licensed? _____

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? _____

_____

_____

PROCESSING

PRICING

Vendor_____ Cell_____ Page_____

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

   A. Billing element #1 (name, rate): _____

   _____

   B. Billing element #2: _____

   _____

   C. Billing element #3: _____

   _____

   D. Billing element #4: _____

   _____

   E. Billing element #5: _____

   _____

2. Are there separate charges for on-line services, if available? Yes ____ No____ DK_____

   A. If YES: How do these on-line charges work?_____

   _____

3. For most processing services there is some form of volume discount plan.

   How does your work? _____

   _____

   _____

4. Are there charges for training? Yes____ No____ DK____ Amount/type_____

   _____

5. What sort of software charges, if any, are involved with tariff changes?

   _____

   _____

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.: _____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: CELLTECH

2. Company Address: HOUSTON

3. Company Telephone #: (713) 586-0110

4. Contact Name: CLYDE BOYLES

5. Contact Title: MKTG DIRECTOR

6. SERVICES OFFERED: (check if yes)

a. Cellular Bill Processing	✓	Telephone & usage sensitive per bill, not lease
b. Paging Bill Processing	✓	
c. Cellular Software	✓	
d. Paging Software	✓	
e. Cellular Turnkey System	NOT YET	
f. Paging Turnkey System	NOT YET	

7. For Processing:

A. What type of mainframe processor is employed (make, model #)
IBM 4361 - this is new 2 shifts

B. What operating system and utilities are used? VSAM VSE? CICS
10 STATION NET 3-com

C. For any on-line services, what terminal type & speeds are employed?
CIS & A.R PC

D. In terms of lines per month, what would you estimate is your current maximum processing capacity?

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes ✓ No ___ DK ___ ALSO DOES SMR

8A. How does this work? ALMOST IDENTICAL - FRONT VARIES

9. For each offering complete functions page "A":

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	✓			
2. Rates domestic toll	✓			
3. Rates international toll			✓	✓
4. On-line inquires for usage	MS on RC.			✓
5. On-line order entry	"	"		✓
6. On-line inquires for orders	"	"		✓
7. Complete on-line account inquiry	✓			
8. On-line cash entry (in person or mail payment: customer service office)			✓	
9. On-line adjustment to bilis				
10. Treatment processing for delinquent accounts				
11. Lockbox processing	✓ - BATCH			
12. Call or airtime itemization	✓ on diskette -			
13. Advance payment processing	✓			
14. Deposit accounting	✓ interest ad terminate write check or credit bill			
15. Rate table maintenance	AIR TIMES & TAXES, NOTIFY, minimum BYS-exchange - new charges			
16. Hotline support 7 days/wk.	during 8-8 & pm central plan tie in suite			
17. Traffic analysis	✓ Busy hrs, cell site usage			
18. Standard management reports	usage, customer, total billing			
19. Ad hoc management reporting	✓	no charge if upgrade is used for all custom RPTS		
20. Repair tracking			✓	
21. Telephone # inventory	✓			

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment			✓	[illegible]
23. Remote agent entry			✓	
24. Sales lead tracking			✓	
25. Billing on demand			✓	
26. Interface to G/L system			✓	
27. Equipment inventory linked to service order system			✓	fully integrated w/in 60 DAYS
28. Equipment is linked to individual line				SIMILAR TO TELEPHONE already has
29. Inventory forecasting			✓	
30. Inventory bar code scanning			✓	
31. Inventory to G/L interface			DK	

32. Other, specify: YES - Why pay for on line if you don't need
Martin Moore designed system - DIDAMPS TRIAL - NO ONLINE CHARGES

33. How many tax levels (GET #): As hurry as you "85 in chicago"

34. What is your bill rendering interval? (# days) 4 Business days
Normally once a month

35. If yes to any on-line type:

What type of terminals are used? _____

PROCESSING

PRICING

Vendor All Tech Cell ✓ Page

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

   A. Billing element #1 (name, rate): Carriers Per Bill 50¢ per phone # $1.50 end usually $2.00

   B. Billing element #2: Call detail - .25¢ per phone # .03/PAGE 42 calls/page not 12

   impact 340 2

   C. Billing element #3: Postage

   D. Billing element #4: Pro Printing & Reading included - Tape negotiable 25/labor trans 45/programming

   E. Billing element #5: NO charge $100 for reseller ZIP for carrier

2. Are there separate charges for on-line services, if available? Yes ✓ in future No ___ DK ___

   A. If YES: How do these on-line charges work? pricing not set - per trans or a storage charge

3. For most processing services there is some form of volume discount plan. How does your work? MARCH 1st 1986 - will be combined 1.50 0-3k 3-6 145 6-10 140 10k $1.35 - Motivated by partnerships

4. Are there charges for training? Yes ✓ No ___ DK ___ Amount/type $25/HR

5. What sort of software charges, if any, are involved with tariff changes?

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.:_____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

2. What operating systems and system software, such as DBMS's are required? _____

3. What are the main terms and conditions for leasing or purchasing this system? ____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

SOFTWARE PRICING

No playing down this way

Cell ✓ Page

1. In what language is the software? COBOL

Hardware & Software:

2. On what systems is it known to run without recompiling? delivers source code
IBM 4331 4361

3. What are the main terms & conditions of licensing? Usage sensitive royalty
Once Quoted 350K

4. What are the main costs involved in obtaining a license? Free
.25 - .05 >5k / per month .02 >5k

5. What costs are involved in obtaining a multiple site license? Can roll up
sites to get discount

6. What are your policies on software maintenance? Covered by the royalties

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? on-line
in 6 months PC - Hybrid PC - pure on line

8. About how many sites are currently licensed? 1 telco

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? No ceiling -

PROCESSING

PRICING

Vendor Cell Tech Cell _____ Page ✓

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

   A. Billing element #1 (name, rate): complete inventory automated activation of pagers in future Flat rate pagers .75 500 65 501 $.50 at 1000 bills

   B. Billing element #2: No rating, no sorting

   C. Billing element #3: Usage sensitivity - prices would be negotiated and higher

   D. Billing element #4: _____

   E. Billing element #5: _____

2. Are there separate charges for on-line services, if available? Yes ____ No ____ DK ____

   A. If YES: How do these on-line charges work? _____

3. For most processing services there is some form of volume discount plan. How does your work? _____

4. Are there charges for training? Yes ____ No ____ DK ____ Amount/type _____

5. What sort of software charges, if any, are involved with tariff changes?

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.: _____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

2. What operating systems and system software, such as DBMS's are required? _____

3. What are the main terms and conditions for leasing or purchasing this system? ____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

CELLTECH
1/31/85

Billing procedure - no comm send floppies
Nole and forth - developing comm

S.D. activity is all local

"user friendly"

21, Prevent double assignment, agree #5

22. Never pushed on automation - don't see our customers really needing this "low thousands users"

[commission report - break out agents w/ a 2 digit code
→ monthly

26. will write code to set up a file Query retrieval "MDBS"
Ad hoc against P.C. $400 →
→ Free training
ex travel $25/hr
BY ACCOUNT#, BY SN, BY NAME, BY Phone #

Want on line after 3-4k line/mo

> Not lost a customer to another vendor <

Emphasize $2/Bill

- AMERICAN CELLULAR - Richmond, Milwaukee (Rubleigh)
- American Mobile (Resellers) Providence Inc
- Louisville -
- Many new ones youngstown, syracuse
- Non Wireline start
- Non Wireline ~~Central Atlant~~

3 in top

Still talking to RBOC

Ameritech - by default
"- Bams -"

Cellular B12 Systems - main competition went up @ $1 a bill

REPRESENTATIVE STUDIES

- Complex Systems Integration: Market needs & status at very large firms in ten industries.

- Utilization & purchase plans for system printer purchases statified by mainframe installations size with an analysis of key aquisition determinants.

- Transaction processing opportunities for financial institutions: strategic & tactical determinants of success.

- Competitive analysis of providers of cellular radio billing systems, software & services.

- Scientific and Engineering applications of mid-range mainframes: user software, operational requirements and satisfaction with vendor service levels.

- Management attitudes toward fourth generation languages: productivity changes and language substitutability.

- Criteria for acquisitions and acquisitions screen by industry segment with a valuation emphasis.

- A procedure for configuring cognate new businesses from an analysis of bus. current competencies & assets with recommendations for further development.

- Strategic analysis of software sales opportunities in manufacturing.

- Long term trends in rates of return, capitalization and employee productivity for four delivery modes and submodes in the information industry.

Marketing

- Status and future development of OSI protocols with product development emphasis and competitive analysis.

- Micro/LAN/Mainframe communications, applications and user plans, 1985-1990.

- The market for fibre-optics channel terminating equipment with user needs analysis and forecast.

- The marketplace for telephone billing systems and services with an emphasis on local measured service.

- Telecommunications market assessment of the banking - industry.

- Marketing strategies and financial impacts of Value-Added Networks.

- Long term demand forecast for ku band satellite capacity.

User Demand

- International communications practices and services of remote computing firms.

- Demand forecast and pricing analysis of market for IntraLata packet services.

- Market analysis with user requirements, plans intentions for international data communications in the Pacific Basin.

User Satisfaction

- User satisfaction and planned utilization with Other Common Carrier services.

- Videotex service configuration: User characteristics, service features and pricing alternatives.

Vendor Planning/Operations

- Information Center utilization: practices and plans with an estimate of current and future expenditures, systems software and preferred capabilities.

- Analysis of company data processing expenses by functional class and company types.

REPRESENTATIVE CLIENTS

1. ADR
2. AT & T Communications
3. AT & T Corp.
4. AT & T I.S.
5. Cincinnati Bell Corp.
6. Cincinnati Bell Info. Systems
7. Citibank, WA
8. Compster Corp. of America
9. Crowntek
10. Digital Equipment Corporation
11. Dun & Bradstreet
12. GEISCO
13. GTE Corp.
14. GTE Data Services
15. IBM FSD
16. IBM I/N
17. IBM NAD
18. IBM NMD
19. Manufacturer's Hanover
20. McGraw-Hill
21. NYNEX
22. SNET Network
23. SNET Information Systems

INPUT®

Parsippany Place Corporate Center, Suite 201
959 Route 46 East, Parsippany, NJ 07054

(201) 299-6999

March 19, 1986

Dear Bill:

Attached is the "model" section of the report I told you about on the phone.

Also, is included the entire report that we did for ADR. We never released the results of custom consulting to the public. However, ADR wanted these results made public. It will give you an idea of the kind of formal results we can produce.

Thanks for your interest and I will be in touch.

Regards,

Bob

Final copy with
our readjusted
page order.

V 1.1

CELLULAR / PAGING COMPETITIVE STUDY

1. Company Name: _____

2. Company Address: _____

_____

3. Company Telephone #: _____

4. Contact Name: _____

5. Contact Title: _____

6. SERVICES OFFERED: (check if yes)

   a. Cellular Bill Processing _____

   b. Paging Bill Processing _____

   c. Cellular Software _____

   d. Paging Software _____

   e. Cellular Turnkey System _____

   f. Paging Turnkey System _____

7. For Processing:

   A. What type of mainframe processor is employed (make, model #)_____

   _____

   B. What operating system and utilities are used? _____

   _____

   C. For any on-line services, what terminal type & speeds are employed? ___

   _____

   D. In terms of lines per month, what would you estimate is your current maximum processing capacity? _____

8. If both cell & page processing: Are the cellular & paging systems run on the same hardware with the same software? Yes___ No ____ DK____

8A. How does this work?_____

_____

9. For each offering complete functions page "A":

SERVICE TYPE_____

FUNCTIONS - "A"

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
1. Handles roaming	_____	_____	_____	_____
2. Rates domestic toll	_____	_____	_____	_____
3. Rates international toll	_____	_____	_____	_____
4. On-line inquires for usage	_____	_____	_____	_____
5. On-line order entry	_____	_____	_____	_____
6. On-line inquires for orders	_____	_____	_____	_____
7. Complete on-line account inquiry	_____	_____	_____	_____
8. On-line cash entry (in person or mail payment: customer service office)	_____	_____	_____	_____
9. On-line adjustment to bills	_____	_____	_____	_____
10. Treatment processing for delinquent accounts	_____	_____	_____	_____
11. Lockbox processing	_____	_____	_____	_____
12. Call or airtime itemization	_____	_____	_____	_____
13. Advance payment processing	_____	_____	_____	_____
14. Deposit accounting	_____	_____	_____	_____
15. Rate table maintenance	_____	_____	_____	_____
16. Hotline support 7 days/wk.	_____	_____	_____	_____
17. Traffic analysis	_____	_____	_____	_____
18. Standard management reports	_____	_____	_____	_____
19. Ad hoc management reporting	_____	_____	_____	_____
20. Repair tracking	_____	_____	_____	_____
21. Telephone # inventory	_____	_____	_____	_____

Function	Offers	$ Charge	Does not offer	Plans to offer w/in 6 months
22. Switching office interface for automate line assignment	_____	_____	_____	_____
23. Remote agent entry	_____	_____	_____	_____
24. Sales lead tracking	_____	_____	_____	_____
25. Billing on demand	_____	_____	_____	_____
26. Interface to G/L system	_____	_____	_____	_____
27. Equipment inventory linked to service order system	_____	_____	_____	_____
28. Equipment is linked to individual line				
29. Inventory forecasting	_____	_____	_____	_____
30. Inventory bar code scanning	_____	_____	_____	_____
31. Inventory to G/L interface	_____	_____	_____	_____
32. Other, specify: _____				
	_____	_____	_____	_____

33. How many tax levels (GET #): _____

34. What is your bill rendering interval? (# days) _____

35. If yes to any on-line type:

    What type of terminals are used? _____

PROCESSING

PRICING

Vendor_____ Cell_____ Page_____

1. What are the basic units for which charges are levied in your (cellular or paging) service offering?

A. Billing element #1 (name, rate): _____

_____

B. Billing element #2: _____

_____

C. Billing element #3: _____

_____

D. Billing element #4: _____

_____

E. Billing element #5: _____

_____

2. Are there separate charges for on-line services, if available? Yes ____ No_____ DK_____

A. If YES: How do these on-line charges work?_____

_____

3. For most processing services there is some form of volume discount plan.

How does your work? _____

_____

_____

4. Are there charges for training? Yes____ No____ DK____ Amount/type_____

_____

5. What sort of software charges, if any, are involved with tariff changes?

_____

_____

6. For what other services do you have individual charges (such as maintenance or conversion)?

A. SVC #1, $ amt.:_____

B. SVC #2, $ amt.: _____

C. SVC #3, $ amt.: _____

D. SVC #4, $ amt.: _____

TURNKEY PRICING

Cell_____ Page_____

1. What is the basic hardware configuration for this system?_____

_____

2. What operating systems and system software, such as DBMS's are required? _____

_____

_____

3. What are the main terms and conditions for leasing or purchasing this system? ____

_____

_____

4. What are the main costs for acquisition, maintenance of hardware & software, training, etc. for the system? _____

_____

_____

5. Is there a discount for the acquisition of multiple systems? Yes ____ No____ DK ___

6. If YES: what are typical terms? _____

_____

7. Are there any significant upgrades scheduled for the next year? Yes___ No___ DK____

A. If YES: What are the scheduled enhancements?_____

_____

_____

8. About how many systems are in use? _____

9. For what scale of operation - bills per month or perhaps lines - is the system best suited? _____

_____

SOFTWARE PRICING

Cell_____ Page_____

1. In what language is the software?_____

Hardware & Software:

2. On what systems is it known to run without recompiling? _____

_____

_____

3. What are the main terms & conditions of licensing? _____

_____

_____

4. What are the main costs involved in obtaining a license? _____

_____

_____

5. What costs are involved in obtaining a multiple site license? _____

_____

_____

6. What are your policies on software maintenance? _____

_____

_____

7. Are any significant upgrades scheduled within the next year? Yes___ No___ DK___

A. If YES: What features or capabilities are scheduled for enhancement? _____

_____

_____

8. About how many sites are currently licensed? _____

9. For what scale of operations - bills per month or perhaps lines - is this software best suited? _____

_____

_____

INPUT

ORDER/INVOICE/FULFILLMENT

YCB4

ORIGINATOR (SIGNATURE) _____ PREPARED BY: _____ DATE: 3/6/86

ACTIVITY

- ☐ NEW ORDER
- ☐ CONTINUATION
- ☒ CHANGE
- ☐ CANCEL
- ☐ SPECIAL:

- ☐ FULFILLMENT ONLY
- ☐ SINGLE INVOICING
- ☐ MULTI-INVOICING: NO. INVOICES _____
- ☐ PENDING:

COMMISSION TO: _____ % _____ % _____ % _____ %

SOLD BY: _____ 60% _____ % _____ % _____ %

APPROVED _____ INITIAL 3/6/86 DATE

PRODUCT

- ☐ SUBSCRIPTION
- ☒ CUSTOM
- ☐ MULTICLIENT
- ☐ REPORTS
- ☐ COPIES
- ☐ CONSULT./PRESENT.
- ☐ TAPES/MATERIALS
- ☐ REIMBURSED COSTS

US / UK	PROJ. I.D/YEAR	TITLE OR DESCRIPTION	AMOUNT
	YCB4		

CLIENT AUTH.

P.O. # _____ INPUT CONTRACT ☐ LETTER ☒ VERBAL ☐

ATTACH ALL AUTHORIZING DOCUMENTS TO WHITE (CONTRACT) COPY.

ORIGINATOR / INVOICE

SHIP TO:* NAME DIANE CEARE

TITLE _____

COMPANY CINCINNATI BELL INFO SYSTEMS

ADDRESS RM1400

600 VINE ST

CINCINNATI, OHIO 45202

PHONE ( )

INVOICE TO: (IF DIFFERENT)

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

PHONE ( )

* ☐ Check here if more than one shipping address and attach names and addresses to green (fulfillment) copy.

* ☐ Check here for address change to mail list.

INVOICE TO READ: (FOR OTHER THAN STANDARD WORDING)

FOR COMPETITIVE ANALYSIS AND ONE DAY OF CONSULTING ON 5 MARCH 1986

SPECIAL INSTRUCTIONS FOR HANDLING, BILLING, STAGGERED OR DELAYED PAYMENTS, ETC.

AMOUNT TO BE BILLED IS $6500 plus TRAVEL EXPENSES

THIS IS 5,250 SECOND HALF PLUS 1,250 FOR ONE DAY

TRAVEL IS $272.86

O.I.F. ONLY

INV. COMP.	BY:	DATE:	CLIENT #:	ORDER #:	INV. #:	MULTI-INVOICING _____ OF _____

ORIGINATOR/SHIPPING FULFILLMENT

ITEM DESCRIPTION OR TITLE	NO.	BY	DATE	ITEM DESCRIPTION OR TITLE	NO.	BY	DATE

FULFILLMENT TO BE COMPLETED IN: ☐ PALO ALTO ☐ LONDON ☐ OTHER _____

• WHITE - ACCOUNTING • GREEN - ACCOUNTING • YELLOW - ACCOUNTING • PINK - ORIGINATOR

• GOLDENROD - REGIONAL SALES MANAGER

R 1/81

1985 QUARTERLY SCHEDULING PLAN Q1

PROJECT: YCB4

PROJECT LEADER: FOSTER

DATE: 2/4/86

CORPORATE/WEEK ENDING

ACTIVITY / PROJECT	NAME	MAN DAYS	EFFICIENCY	ESMD	CORP WEEK END	JANUARY 1 1/4	2 1/11	3 1/18	4 1/25	FEBRUARY 5 2/1	6 2/8	7 2/15	8 2/22	MARCH 9 3/1	10 3/8	11 3/15	12 3/22	13 3/29
PROJECT AUTHORIZATION/ SPECIFICATION	BWF			.4						+								
Q DESIGN				1							+							
Q APPROVAL/ REVIEW MEETING				1							+							
INTERVIEWS ON SITE ( ) NO.												+						
INTERVIEWS PHONE ( ) NO.				4	8½													
DATATAB AND ANALYSIS				1									+	+				
WRITING				1														
ABSTRACT																		
QC																		
REPORT PROD. AND SHIPPING																		
PRESENTATION																		
"THANK YOU" MAILED																		
PLAN				8.4														
ACTUAL																		
CUM P/A																		

INPUT

R12/83

TITLE CELLULAR COMPETITIVE

CLIENT CBS

CONTRACT: ATTACHED ____ TO FOLLOW ✓ LETTER ____ VERBAL ____

PROJECT LEADER Muf CODE YCBY

DATE STARTED 2/1 PLANNED COMPLETION DATE 3/15

LEVEL OF EFFORT(Professional Man Days) 8.4

TOTAL CONTRACT VALUE: $ $10,500

REVENUE DISTRIBUTION (% or $) INPUT US 100 INPUT LTD ____

REIMBURSABLE EXPENSES: NO ____

YES ✓

EXP. BUDGET ____ TO COVER: TRAV: ✓
TEL: ____
RPT. PREP.: ____
OTHER: ____

BILLING SCHEDULE DESCRIPTION 50/50 Split

PROJECT DESCRIPTION INTERVIEW COMPETITORS ON NATURE OF CELLULAR OFFERINGS, PRICING, PRODUCT DEVELOPMENT

INDICATE TYPE OF CUSTOM WORK: REPORT ____ PRESENTATION ____

THANK YOU PACKAGE: YES ____ NO ____

INPUT N.J.
SECOND TIME

ENCLOSED: PROJECT YCB4

- OIF _____
- W.S. YCB4 ✓
- SKED YCB4 ✓
- EXPENSES _____
- INVOICES _____

DATE SENT: DMF BY: 2/28

DATE RECEIVED: 3/4/86 BY: Sheila Call - THANK-You

EXCEPTIONS: Note below or check NONE

_____

_____

_____

INPUT®

Parsippany Place Corporate Center, Suite 201, 959 Route 46 East, Parsippany, NJ 07054 (201) 299-6999

YCBY

February 10, 1986

Miss Diane Leake
Cinncinnati Bell Information Systems
Rm. 1400
600 Vine St.
Cincinnati, Ohio 45202

Dear Miss Leake:

This document constitutes a record of work authorized by D. Disch in the area of Cellular/ Paging Billing services and software. Specifically, you requested and we agreed to:

I. 1. Determine nature of service and software offerings for eight vendors.

2. Determine existence or absence of a list of specific features for these services.

3. Determine using publicly available information the probable course of development for the services.

4. Determine the pricing, terms and conditions in which Cellular/ Paging Billing services and software are made available.

5. Analyze the above data for a list of vendors provided by CBIS and report on findings in the above areas.

6. Consult with members of the CBIS staff on specifics of certain vendors to meet immediate tactical requirements.

7. Provide a basic report on items 1 through 5 to CBIS.

A copy of the questionnaire developed by INPUT with participation of CBIS personnel is attached. After completion of aquisition of the baseline data INPUT recommends that CBIS give serious consideration to:

II. 1. An onsite presentation of the study findings so that all concerned parties may hear first hand the results of the study.

2. A "benchmarking" exercise in which a model is built of the pricing of the various competitors and compared with CBIS pricing for these services and to assess areas of pricing strength and weakness.

3. A market size estimation exercise to reconcile the various conflicting claims of the participants combined with a customer satisfaction study

to determine both the size of the opportunity and probable future changes in user/supplier relationships, as well as, key requirements of users.

Schedule and Fees

This engagement shall be completed within 45 days of the "informal" start date of January 30, 1986 for items in part I, above. No schedule or fees have been set for the recommended items in part II. The fee for the part I items shall be $10,500.00 payable in two installments of $5,250.00. The first installment is due upon receipt of invoice, the second at completion of the study. Expenses for telephone, travel and lodging (if any) will be billed at the completion of the study and at cost.

Conclusion

INPUT is pleased to have this opportunity to serve CBIS. To validate our agreement, simply sign in the space provided below. Should there be any questions, please contact the undersigned.

Sincerely,

D.W. Fostle
Vice President

Accepted by Cincinnati Bell Information Systems:

Name: Deborah A Resch

Title: VICE PRES - SALES & MKTG

Date: 5/3/86

Signature: Deborah A Resch

CELLULAR AND PAGING BILLING OFFERINGS

A COMPETITIVE OVERVIEW

WITH

EMPHASIS ON PRODUCT FEATURES AND PRICING

SPECIAL PRESENTATION FOR

CINCINNATI BELL INFORMATION SYSTEMS

MARCH 5, 1986

INPUT
PARSIPPANY, NJ
(201) 299-6999

INTRODUCTION

- IN JANUARY 1986 INPUT WAS ENGAGED BY CBIS TO CONDUCT IN-DEPTH INTERVIEWS WITH SENIOR MANAGERS AT FIRMS WHICH COMPETE WITH CBIS IN CELLULAR AND PAGING BILLING SERVICES.

- THE LIST OF COMPETITORS WAS DEVELOPED BY CBIS AND RECRUITING OF INFORMED INDIVIDUALS FOR THE INTERVIEWS WAS ACCOMPLISHED BY INPUT RESEARCH ANALYSTS.

- IN A DEPARTURE FROM ORDINARY TECHNIQUE, THE ACTUAL INTERVIEWS WERE CONDUCTED BY AN INPUT VICE PRESIDENT TO ESTABLISH A "PEER" RELATIONSHIP WITH RESPONDENTS IN TARGET COMPANIES AND TO MAXIMIZE THE RICHNESS OF OF THE INFORMATION OBTAINED.

- DETAILED DATA WAS OBTAINED FROM 100% OF THE COMPANIES TARGETED. RESPONDENTS EXHIBITED A HIGH DEGREE OF COOPERATION AND WERE EXTREMELY KNOWLEDGEABLE REGARDING THEIR RESPECTIVE OFFERINGS.

INTERVIEWS

THE FOLLOWING FIRMS WERE INTERVIEWED:

COMPANY	TITLE
AUXCO	VICE PRESIDENT
BANK OF ILLINOIS	MKTG. VICE PRESIDENT
BELL ATLANTIC ENTERPRISES	MKTG. DIRECTOR
CELLTECH, INC.	MKTG. DIRECTOR
CELLULAR BUSINESS SYSTEMS	MKTG. DIRECTOR
CELLULAR SOFTWARE, INC.	PRESIDENT
NORTH CENTRAL DATA COOP	SALES DIR., SR. SYST.COORD.
TDS	MKTG. DIRECTOR

- INTERVIEW DURATION RANGED BETWEEN 1.5 AND 2.5 HOURS PER FIRM, ALL DURING FEBRUARY 1986. ACCORDINGLY PLANS OR FUTURE CAPABILITIES SHOULD BE REFERRED TO THIS DATE.

RESPONDENT PROCESSING CHOICES

COMPANY	HARDWARE	O/S	DBMS
AUXCO	IBM 43XX	MVS	IMS,CICS
BANK ILL.	IBM 43XX	VM TO VMS	NONE
BELL ATL.	IBM 3081	MVS XA	IMS,CICS
	DEC VAX	VMS	
CELLTECH	IBM 43XX	VSE	CICS
CELL. BUS. SYS.	IBM 43XX	VSE	NONE
CELL. SOFT.	DATA P7 70 IBM PC	LAN	NONE
NCDC	BGH 6800/BGH 96	MCP	NONE
TDS	AMD V/8	MVS XA	NONE

- NOTE THE OVERWHELMING PRESENCE OF "370" ARCHITECTURE IBM SYSTEMS AND THE STRONG SHOWING OF MVS.
- NOTE ALSO A DBMS APPROACH IS NOT UNIVERSAL.
- ONLY AUXCO AND CELLULAR BUSINESS SYSTEMS ARE "CLASSICAL" ONLINE SYSTEMS WITH 3270'S UNDER SNA.
- CELLULAR SOFTWARE HAS A TECHNICALLY UNIQUE "DISTRIBUTED" ARCHITECTURE. OTHERS INCLUDING BAE, CELLTECH, NCDC, TDS, BANK ILL., PLACE SOME PROCESSING OPERATIONS ON THE CUSTOMERS SITE, USUALLY WITH A MS/DOS PC.

CUSTOMER EQUIPMENT

COMPANY	DESCRIPTION
AUXCO	3720 UNDER SNA OR BISYNC, 4.8 OR 9.6.
BANK ILL.	PC/DOS MICRO, DISKETTES ARE SHIPPED, SOME COMM.TELECOMM FOR UPDATES IN FUTURE. BASICALLY ALL FUNCTIONS EXCEPT RATING, RENDERING ON PC.
BELL ATL.	MICRO VAX ON CUSTOMER SITE DOES RATING, IBM PC ACTUATES SWITCHES, 3270'S CAN ALSO BE USED.
CELL. TECH.	IBM PC FOR CUSTOMER SERVICE AND ACCOUNTS RECEIVABLE.

CELL. BUS. SYS. 3270'S UNDER SNA @ 9.6.

CELL. SOFTWARE ARCNET-BASED DISTRIBUTED SYSTEM.WILL USE PC/AT'S AND CHARLES RIVER PROCESSOR.HAS NO "MAINFRAME."

NCDC ALL FUNCTIONS EXCEPT RATING AND RENDERING ON LOCAL BGH GEAR RANGING FROM B-96 TO B-1900.

TDS ALL FUNCTIONS EXCEPT RATING AND RENDERING HANDLED ON PC. LIMITED TO ONE PER SITE CURRENTLY.

NOTE: CUSTOMERS ARE EXPECTED TO PROVIDE OWN EQUIPMENT IN MOST CASES.NCDC SELLS BGH AT DISCOUNT,BAE PROVIDES VAX AS AS A PART OF SERVICE.

SERVICES OFFERED

COMPANY	CELL BILL	PAGE BILL	CELL SOFT	PAGE SOFT	CELL TURN	PAGE TURN	SAME
AUXCO	Y	Y	Y	Y	P	P	Y
BANK ILL	Y	Y	P	P	P	P	Y
BELL ATL	Y	N	Y	P	F	F	N
CELL TECH	Y	Y	Y	Y	F	F	Y
CELL B.S.	Y	Y	Y	Y	P	P	Y
CELL SOFT	N	N	N	N	Y	Y	Y
NCDC	Y	Y	P	P	N	N	Y
TDS	Y	F	P	F	Y	P	Y
%YES	88	63	5Ø	38	25	13	88

KEY Y=YES; N=NO; P=POSSIBLE NOW; F=HAS FUTURE PLANS

SERVICES OFFERED,CONT'D

- WITH THE SOLE EXCEPTION OF BELL ATLANTIC, RESPONDENTS STATED THAT SYSTEMS AND SOFTWARE WERE THE SAME FOR PAGING AS CELLULAR. THESE RESPONDENTS DID NOT GIVE THE IMPRESSION THAT THEY ENGAGED IN MATERIAL PAGING ACTIVITY.

- IT APPEARS THAT THESE RESPONDENTS DO NOT TREAT PAGING AS A DISCRETE MARKET WITH SEPARATE NEEDS. SOME STATED THAT PAGING WAS "SIMPLE" AND COULD BE HANDLED INHOUSE.

- ALSO NOTABLE IS THE VERY HIGH DEGREE OF FLEXIBILITY AS INDICATED BY "P" RESPONSES. IN EFFECT THESE INDIVIDUALS ARE SAYING THAT WHILE THEY HAVE NOT "DONE DEALS" IN THESE MODES THEY REMAIN OPEN TO THE POSSIBILITY. THE WILLINGNESS TO NEGOTIATE VIRTUALLY ANY ARRANGEMENT WAS MULTIPLY EXPRESSED IN MANY CONTEXTS BY ALMOST ALL RESPONDENTS. THESE PEOPLE ARE FLEXIBLE ON BUSINESS TERMS AND CONDITIONS AS WELL AS MODES OF DELIVERY.

- THIS CAN BE SEEN IN THE TOTALS WITH 46% OF ALL POSSIBLE ENTRIES IN INDICATED AS "YES;" 27% AS "POSSIBLE;" 13% AS "AVAILABLE IN FUTURE" AND ONLY 14% AS "NO." OF THE "NO'S" OVER HALF COME FROM ONE SPECIALIST FIRM, CELLULAR SOFTWARE.

- OF THE FIRMS EXAMINED ALL BUT ONE ARE POTENTIAL COMPETITORS FOR CBIS IN CELLULAR BILLING PROCESSING AND SOFTWARE SALES. THIS DOES NOT MEAN THAT THEY ARE ALL MEANINGFUL COMPETITORS, AS WE SHALL SEE.

FUNCTIONS HANDLED

- 32 SPECIFIC BILLING FUNCTIONS WERE EXAMINED WITH RESPECT TO OFFERINGS, CHARGES AND PLANS TO OFFER(IF NOT PRESENTLY AVAILABLE). THIS SECTION SUMMARIZES THE RESPONSES.

- HANDLES ROAMING-ALL CLAIM TO OFFER. EXTRA CHARGES AT BANK ILL.,CELL. BUS. AND TDS.

- RATES DOMESTIC TOLL-NCDC NO, CELL. SOFT. CANADA ONLY. CELL.TECH. NO, AUXCO MANUAL. OTHERS YES.

ONLINE CAPABILITY

	USAGE	O/E	ORD. INQ.	ACCT.INQ.
AUXCO	Y	Y	Y	Y
BANK ILL.	RJE	RJE	RJE	RJE
BELL ATL.	VAX	VAX	VAX	VAX
CELL.TECH.	PC	PC	PC	PC
CBS	Y	Y	Y	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	BGH(L)	BGH(L)	BGH(L)	BGH(L)
TDS	N	PC	PC	PC

- NOTE THAT WHILE ALL FIRMS HANDLE THESE FUNCTIONS THEY ARE PERFORMED IN DIFFERENT WAYS.

- ONLY AUXCO AND CBS ARE "CLASSICAL" 3270 ONLINE; BALANCE RETAIN INFORMATION LOCALLY.

- TDS HANDLES USAGE REQUESTS BY TELEPHONE VERBALLY OR SENDS FICHE.

CAPABILITY,CONT'D

CASH	O/L ENTRY	O/L BILL ADJ.	TREAT	LOCKBOX
AUXCO	Y	Y	Y	Y
BANK ILL.	RJE	RJE	Y	Y
BELL ATL.	Y	Y	Y	Y
CELL.TECH.	N	N	N	N
CBS	Y	Y	Y	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	BGH(L)	BGH(L)	Y	Y
TDS	PC	PC	PC	N

- AS IN THE EARLIER CAPABILITIES, NOTE THE VARIETY OF OF RESPONSES.

CAPABILITY.CONT'D

	ITEMIZATION	ADV.PAY	DEP.ACCTG.	RATE MAINT.
AUXCO	Y	Y	Y	Y
BANK ILL.	Y	Y	Y	Y
BELL ATL.	Y	Y	Y	Y
CELL.TECH.	Y,DISK	Y	Y	Y
CBS	Y	Y	Y	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	FICHE	Y	Y	Y
TDS	Y	Y	Y	Y

- NOTE THAT WITHIN THIS GROUP THERE IS LITTLE VARIATION ON THESE ITEMS.

- DEPOSIT ACCOUNTING IS TYPICALLY WITH INTEREST COMPUTATION.

CAPABILITY,CONT'D

	HOTLINE	TRAFFIC	STD.RPTS.	AD HOC RPTS.
AUXCO	ACCT. MGRS.	EASY-TRIEVE	25	EASY-TRIEVE($65)
BANK ILL.	8-5 5 DAYS	N	N	Y($45)
BELL ATL.	8-5 5 DAYS	CELLSITE	SOME	Y($65)
CELL.TECH.	8-8 5 DAYS	Y	Y	Y(N.C.)
CBS	12 HRS. 5 DAYS	Y	12	Y($50)
CELL.SOFT.	9-6 5 DAYS	Y	Y	USER
NCDC	8-5 5 DAYS	Y	Y	Y(N.C.)
TDS	8-4:30	N	12+	Y($65)

- SUPPORT IS GENERALLY FOR BUSINESS HOURS LOCALLY.

- TRAFFIC REPORTS WHEN PRESENT ARE MINIMAL,E.G. ERLANGS, CCS,BUSY.

- STANDARD REPORT CAPABILITIES VARY WIDELY AS DOES PRACTICE WITH AD HOC REPORTING.

CAPABILITY,CONT'D

	REPAIR TRACK	# INV.	AUTO ASSIGN	REM. AGT. ENTRY
AUXCO	Y	Y	N(6)	Y
BANK ILL.	N	Y,PC	N	N(6)
BELL ATL.	N	Y	Y,PC	Y
CELL.TECH.	N	Y	N	N
CBS	N	Y	Y,PC	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	Y	Y	N	N
TDS	N	Y	N	N

0 NUMBER IN PARENTHESES INDICATES PLANS TO OFFER WITHIN 6 MONTHS.

CAPABILITY,CONT'D

	SALES LEAD	DEMAND BILL	G/L INTER	INV.TO S.D.
AUXCO	EASYTRIEVE	N	Y(MSA)	N
BANK ILL.	N	N	N(6)	N
BELL ATL.	N	N	N(6)	N
CELL.TECH.	N	N	N	N(2)
CBS	N(6)	N(6)	N	N
CELL.SOFT.	Y	Y	Y(OWN)	Y
NCDC	N	N	N(9)	Y
TDS	N	N	Y(OWN)	Y

- IN GENERAL, THIS IS A SPARSELY POPULATED SET WITH SOME DEVELOPMENT IS PROGRESS.

- SOME R'S INDICATE THAT THEIR CUSTOMERS DO NOT MAINTAIN EQUIPMENT INVENTORIES. AN INVENTORY TO S.O. IS THEREFORE NOT NEEDED IN THEIR VIEW.

- G/L INTERFACES ARE USUALLY VERY SPECIFIC. MOST INDICATE THEY WOULD WRITE A CUSTOM INTERFACE ON A T&M BASIS.

CAPABILITY,CONT'D

	EQUIP/LINE LINK	INV. FORECAST	INV. BAR CODE	INV./GL INTER
AUXCO	Y	N	N	N
BANK ILL.	N	N	N	N
BELL ATL.	Y(PC)	N	N	N
CELL.TECH.	N	N	N	DK
CBS	Y	N	N	N
CELL.SOFT.	Y	N	N	N
NCDC	N	N	N	N
TDS	Y	N	N	Y

- BELL ATL. HAS SEPARATE PC-BASED SYSTEM FOR EQUIPMENT INVENTORY USED BY AGENTS. ALSO INCLUDES LEAD TRACKING.

- NO ONE OFFERS OR PLANS TO OFFER INVENTORY FORECASTING OR BAR CODE SCANNING. R'S SEEMED "POLITELY MYSTIFIED" BY THESE QUESTIONS.

CAPABILITY,CONT'D

	T LEVELS	RENDERING
AUXCO	6 MAX	3 DAYS
BANK ILL.	6	5 DAYS
BELL ATL.	5	4 DAYS
CELL.TECH.	85	4 BUS. DAYS
CBS	P	3-7 DAYS
CELL.SOFT.	6	CLIENT SETS
NCDC	6/99	3 DAYS
TDS	5	2 DAYS DISKETTE

- AUXCO CLAIMS 3 DAYS IS "GUARANTEED," BANK ILL. STATES 5 DAYS IS CONTRACTUAL. CELL. SOFT.,(TURNKEY) ALLOWS FOR MONTHLY,QUARTERLY,SEMI-ANNUAL AND ANNUAL BILLING INTERVALS. TDS IS 2 DAYS AFTER RECEIPT OF DISKETTE.

CAPABILITIES EMPHASIZED

- FREE FORM QUERIES WERE MADE ON "ADDITIONAL OR PARTICULARLY IMPORTANT CAPABILITIES OF YOUR SYSTEM." THE FOLLOWING RESPONSES WERE OBTAINED:

- AUXCO-WE CAN DO CYCLE BILLING ON ANY BASIS UP TO DAILY. OUR MKTG SYSTEM INCLUDES PROFESSIONAL, SIC, AUTOTYPE AND ZIP CODE. NON IMPACT PRINTING AVAILABLE WITHIN 90 DAYS. WE PROCESS 60% PERCENT OF WIRELINE BILLS, TOTAL OF 252,000 BILLS IN DECEMBER 1985, 20 MILLION MESSAGES. PROCESSING BELL SOUTH, SW BELL PACTEL, UNITED, CONTEL MOBILE AND SNET. STRONG EMPHASIS ON CUSTOM REPORTING THRU EASYTRIEVE, DEVELOPING AUTOMATIC SWITCH INTERFACE.

- BANK ILL.-PLAN TO AUGMENT STANDARD REPORTS WHICH INCLUDE BUSINESS OFFICE, AGED TRIAL BALANCES,TAX,AGENT COMMISSION, REVENUE. CUSTOMER MICRO FUNCTIONS INCLUDE S.O., INQUIRY, BILL HISTORY AND DETAIL,SOME MESSAGE DETAIL,PAYMENTS AND ADJUSTMENTS. SYSTEM NEW IN APRIL 1985; STILL RUNNING SIDE-BY-SIDE. PROCESSING MOBILNET,SOME CELLULAR ONE, NY, LA, AND TAMPA RESELLERS, NO BELL WIRELINE,ALSO AKRON AND BUFFALO. EMPLOYES 60-70 PERSONS. DEVELOPING 3270 UNDER CICS(NO DATE) FOR COMMUNICATIONS.

● BELL ATLANTIC-ORDER ENTRY EMPHASIZES PRODUCTIVITY AND FLEXIBILITY. RESELLERS CAN ACTUATE #'S. CALLS RATED AT MID-NIGHT, PROCESSED NEXT DAY, THEN TO THIRD PARTY FOR RENDERING NIP. AGENT COMPLETION BY CSR IMPORTANT FEATURE. REPORTS ON VAX WITH FILES EXTRACTED FROM MAINFRAME. HAVE 35 PROGRAMMERS. SYSTEM IS EXTENSIVELY MODIFIED OF AT&T ORIGIN.RATING VERY EXTENSIVE INCLUDING OCC'S. EMPHASIZE FLEXIBILITY AND NEGOTIABILITY OF BUSINESS TERMS.

● CELL.TECH.-CLAIMS HAS NOT LOST A CUSTOMER TO ANOTHER VENDOR. FLOPPIES ARE TRANSMISSION MEDIUM-STATES ONLINE NEEDED AFTER BILLING EXCEEDS 3-4K ACCOUNTS/MONTH. USES MICRO-DBMS FOR QUERY RETREIVAL ON PC.CAN QUERY BY ACCOUNT #, EQUIPMENT SN, NAME, PHONE #. MARTIN MOORE DESIGNED SYSTEM. AMPS DESIGNER "WHY PAY FOR ONLINE IF YOU DON'T NEED IT."

● CELL.BUS.SYS.-EMPHASIZES THAT SOFTWARE IS TABLE-DRIVEN FOR GREATER FLEXIBILITY IN PROMOTION PRICING, FOR DISCOUNTS AND SPECIAL TARRIFFS. HAS INTERFACE TO SWITCH. CLAIMS TO PROCESS 80% OF NON-WIRE; 35-40% OF ALL SUBSCRIBERS, HAS 38 FULL-TIME PROGRAMERS WORKING ON ENHANCEMENTS. PROCESSING NON-WIRELINE IN TOP 10 MARKETS AND CENTEL, UNITED AND B.C. TEL WIRELINES. NO BELLS CLAIMED.

● CELL. SOFTWARE--EMPHASIZES POWERFUL TECHNOLOGY,EXPANDABILITY TO 100K ACCOUNTS/MONTH. CLAIMS TO HAVE ONLY "REAL-TIME" BILLING SYSTEM TO 75 TRANSACTIONS PER SECOND FROM SWITCH. COMPLETELY INTERGRATED FROM LEAD CAPTURE THROUGH COLLECTION. R VERY TECHNICALLY ORIENTED. WORKING ON OPTICAL DISK STORAGE. 20 PERSONS IN THE COMPANY, 12 IN DEVELOPMENT. CLAIMS STRENGTH IN CANADIAN MARKET. STATES 1.2 MILLION LINES OF CODE HAVE BEEN WRITTEN FOR SYSTEM SINCE 1981. FULLY DISTRIBUTED USING "PIPELINE" PROCESSORS. WOULD NOT DIVULGE NAMES OF USERS.

● NCDC-EMPHASIZES AVAILABILITY OF OTHER PACKAGES INCLUDING G/L, A/R, A/P, PAYROLL.ABILITY TO DO CO-OP ACCOUNTING AS WELL AS CARRIER ACCESS BILLING AND CATV. EMPLOYS 77 PERSONS. SERVES 40 PHONE COMPANIES. RESELLS BURROUGHS GEAR BELOW BURROUGHS PRICES.OPERATES AS A NON-PROFIT CO-OPERATIVE.

● TDS-STATES HAS TWO SMALL(1KBILL/MONTH) CELLULAR CUSTOMERS.EMPHASIZES MARKETING INFO ON SYSTEM INCLUDING DEMOGRAPHICS, WHY USING, WHERE HEARD OF, USING CYBER FORMAT FOR CLEARINGHOUSE. NEW SYSTEM FIRST OFFERED IN Q4.57 SMALL WIRELINES INCLUDING TDS TERRITORIES. EMPLOYS 90 IN OPERATIONS AND 45 IN PROGRAMMING.

AUXCO PRICING

PROCESSING: $.50 PER #
$.015 PER MESSAGE, FIRST MILLION
$.0125 PER MESSAGE,1-2 MILLION
$.010 PER MESSAGE,2 MILLION PLUS
$.07 PER BILL PRINTING AND STUFFING
$.01 PER FLYER STUFFED
$25.00/TAPE(1X,200 AVG PER CLIENT)
$5K MONTHLY MINIMUM
$5K CGSA START-UP CHARGE INCLUDES:
1 WEEK TRAINING 4-5 PERSONS
AND TARRIFF LOADING INCLUDED.
COST FOR PAPER,ENVELOPES AND
POSTAGE.
PROGRAMMING @ $56.25/ HR.
CONVERSION IS CLIENT RESPONSIBILITY
OR CHARGED AT $56.25/HR.

SOFTWARE: $500,000 FOR 99 YEAR LICENSE 1 SITE
$450,000 FOR SECOND SITE
$400,000 FOR THIRD SITE
FURTHER SITES NEGOTIABLE
INSTALLATION @ 150,000/SITE W/YR WARRANTY
2ND YEAR MAINTENANCE @ 15% OF LINCENSE FEE
SOURCE LICENSE, DOCUMENTATION INCLUDED

COMMENTS: 1 SITE LICENSED, 1 IN NEGOTIATION,CLAIMS CROSS-OVER TO LICENSE OCCURS @ 40-50K BILLS/MONTH FOR INHOUSE. 2000 BILLS NEEDED FOR PROCESSING IMPLYING $2.50 PER BILL CHARGE. PAGING BILL PROCESSING AT SAME RATES.

BANK OF ILLINOIS PRICING

PROCESSING: CHARGES PER # BUT WOULD NOT STATE RATE
CLAIMS AVG COST/BILL IS $1.86 @ 4-5K
BILLS/MONTH

LOW COST=$1.25/BILL; HIGH COST=$2.25
"MOST WITHIN $1.70-2.00/BILL"
SCALE SLIDES IN 5K BILL STEPS
MESSAGES @ $.01 FIRST MILLION
$.009 SECOND MILLION
$.25 PER SERVICE ORDER, NO VOL. DIS'T
$50.00/ROAMER TAPE
RENDERING AND STUFFING INC. IN RATES
AS IS STOCK AND ENVELOPES
STUFFING(TO 3 SHEETS) ALSO INCLUDED
CONVERSION CHARGES "HIGHLY DISCRETIONARY"
AT $60/HR
ONLINE CHARGES FOR MACHINE TIME,CUSTOMER
PAYS "MACHINE CHARGES"
SOME TRAINING INCLUDED(NEGOTIABLE)

SOFTWARE: HAS NOT DONE ANY. NOT PRICED BUT WOULD BE
WILLING TO DISCUSS. WRITTEN IN COBOL, WOULD
RELEASE SOURCE CODE.

COMMENT: RESPONDENT VERY RELUCTANT TO DISCUSS PRICING
POLICY BUT COOPERATED IN ALL OTHER RESPECTS.

BELL ATLANTIC ENTERPRISES PRICING

PROCESSING: CHARGES PER ACTIVE #
10K #'S=$2.50 EACH
30K #'S=$2.25 EACH
50K #'S=$2.00 EACH
70K #'S=$1.75 EACH
90K #'S=$1.50 EACH
STANDARD ONLINE REPORTS INCLUDED

TERMINAL EQUIPMENT AND COMMUNICATIONS AT CUSTOMER EXPENSE

VAX AT BAE EXPENSE
SPECIAL REPORTS @ $200 CPU/MIN ON 3083J
PRINTING(TO 5 PAGES) AND STUFFING EXTRA AT $.025 PER IMAGE,INSERTION $.10
CONVERSION IS NEGOTIABLE(SEEKS MULTI-YEAR RELATIONSHIPS)

SOFTWARE: ONE TIME CHARGE $500=$750K INCLUDES SOURCE
30% DISCOUNT FOR OBJECT CODE ONLY
MULTIPLE SITES @ $500K EACH
$75K/YR SOURCE MAINTENANCE CHARGE
OFFERS SOFTWARE ON A TRANSACTION BASIS OF $.50/BILL PRODUCED AS ALTERNATIVE

INSTALLATION AND TRAINING NEGOTIABLE

NO SITES NOW LICENSED

30K BILLS/MONTH EXPECTED CROSS-OVER POINT

CELL.TECH. PRICING

CELL PROCESSING: CHARGES PER PHONE # AT $.50
CALL DATA AT $.25 PER # PLUS $.03
PER PAGE AT 42 CALLS PER PAGE
TYPICAL CHARGE $1.50-$2.00/BILL
NEW PRICING AS OF 3/1/86:
- 0-3K BILLS=$1.50
- 3-6K BILLS=$1.45
- 6-10K BILLS=$1.40
- 10K+ BILLS=$1.35
- J.V'S CAN COMBINE FOR DISCOUNT
- TRAINING AT $25/HR(NEGOTIABLE)
- $45/HR FOR PROGRAMMING

PAGING PROCESSING: $.75-$.50 AT 10K BILLS
NO RATING, FLAT RATE
WILL NEGOTIATE FOR HIGHER VOLUMES

SOFTWARE: FLAT RATE AT $300K
USAGE SENSITIVE ALTERNATIVE OF $.25 TO $.05 AT 25K BILLS
NO POLICY ON MAINTENANCE(NEGOTIABLE?)

CELLULAR BUSINESS SYSTEMS PRICING

PROCESSING: TYPICALLY $3.00 PER # "EVERTHING INCLUDED"
NO EXTRA CHARGE FOR CALL DETAIL,PRINTING,
STUFFING,MAINTENANCE.
ONLINE ALSO INCLUDED(EX TERMINALS,COMM.)
DISCOUNT ON VOLUME 30K BILLS=$3.30/BILL,
$1.90=40K BILLS
TRAINING FREE(3-4 DAYS) EXCEPT TRAVEL

EXPENSE

$.50 PER ROAMING CALL, $30. MINIMUM
PROGRAMMING $50./HOUR
EXTRA CHARGES FOR RUNNING NOTICES AND
INTERNATIONAL TOLL

SOFTWARE: TYPICAL $250K PER SITE
WILL NOT PROVIDE SOURCE CODE
MAINTENANCE 1.5%/MO.=$3750
DISCOUNTS POSSIBLE WITH SUBSCRIBER VOLUME
OF SITES PROPRIETARY
WRITTEN IN COBOL
SWITCH MANAGER(PC-BASED) LICENSES AT

$7-$18K

CELLULAR SOFTWARE INC. PRICING

TURNKEY ONLY: SYSTEMS TO PROCESS 15,000 BILLS CONFIGURED AT $150-$175K. $250K SYSTEM WILL HANDLE 100K BILLS. CLAIMS TOTAL COSTS AS LOW AS $.50 BILL/MONTH.

OFFERS 25% DISCOUNT ON SECOND SITE, 27% ON THIRD,30% ON FOURTH.

CUSTOM ENHANCEMENTS $90-$150 HR.4 HR MIN.

MINIMUM SYSTEM CONSISTS OF FILE SERVER, PROCESSOR, TERMINALS, TAPE, PRINTER AND SWITCH CONVERTER. $75K HARDWARE; $75K SOFTWARE.

CLAIMS BREAKEVEN AT 2500 SUBSCRIBERS, EITHER CELL OR PAGE.

"WILL NOT WORK WITH BIG WIRELINES"

OVERHEAD, LEGAL AND SUPPORT COSTS TOO HIGH.

NORTH CENTRAL DATA COOPERATIVE PRICING

PROCESSING: $.24 PER ACCOUNT/MONTH FOR MAINFRAME PROCESSING

$.Ø25 PER RECORD MOBILE AIRTIME

$.Ø15 TOLL RATING

$3K FOR CUSTOM SITE SOFTWARE, $45K AVG H/W

$1.5K START UP INCLUDES INSTALLATION

$1ØØ/PERSON FOR 3 DAYS TRAINING

$25/HR FOR PROGRAMMERS

$55/HR FOR ANALYSTS

$15Ø/HR COMPUTER TIME(SPECIAL REPORTS)

PRICES SAME FOR PAGING OR WIRELINE TELEPHONE

SOFTWARE: SYSTEM AVAILABLE ONLY IN "HYBRID" PROCESSING MODE. LOCAL PACKAGE COSTS ARE AS FOLLOWS:

INVENTORY=$3K

G/L=$2.5K

A/P=$2.5

PAYROLL=$2.5K

TROUBLE REP.=$2.5K

VEHICLE ANAL.=$2.5K

UNCOLLECTABLES=$1.ØK

TDS COMPUTING PRICING

PROCESSING:
- CHARGES ON PER # BASIS
- $3.00 PER BILL W/ONE #(ALMOST ALL)
- SOFTWARE PROVIDED FOR PC
- 2-3 DAY TRAINING PROVIDED
- TARIFF CHANGE FREE
- DETAIL INCLUDED
- SUPPLIES AT COST
- NO CURRENT VOLUME DISCOUNT SCHEDULE
- MACHINE TIME $1.50 CPU.SECOND(V-8)
- PROGRAMMING $65/HR(ALWAYS QUOTE)

SOFTWARE:
- WOULD NOT QUOTE PACKAGE PRICES
- 50% DISCOUNT FOR MULTIPLE SITES
- 15%/YEAR MAINTENANCE AFTER 1 YEAR
- WILL PROVIDE SOURCE CODE

MEANINGFUL COMPETITORS

- FROM THE COMPLETE LIST WE MAY REMOVE THE FOLLOWING AS SIGNIFICANT COMPETITORS:

COMPANY	REASONS(S)
CELL.SOFT.	TECHNICALLY UNUSUAL, MAIN INTEREST IN NON-BELL AND CANADIAN. DOES NOT WANT TO DEAL WITH BOC'S DUE TO PRIOR BAD EXPERIENCE. LIMITED MARKETING.
NCDC	EMPHASIS ON SMALL TELCOS, NON IBM BUT VERY INEXPENSIVE. LIMITED MARKETING.
TDS	LIMITED SYSTEM SIZE(1K BILLS/MONTH) FOCUS ON SMALL TELCOS.
CELL.TECH.	EMPHASIS APPEARS TO BE AT LOW END OF MARKET, PC-ORIENTED,NO COMMUNICATION LIMITS TO 3-4K BILLS/MO/CUSTOMER.

THE MAIN CONTENDERS ARE:

AUXCO — VERY AGGRESSIVE, CLAIMS LARGEST MARKET SHARE. CLAIMS 252,000 BILLS PROCESSED IN DECEMBER 1985. HAS MULTIPLE FIELD OFFICES. TECHNOLOGICALLY SIMILAR TO CBIS.

BELL ATL. — NEW ENTRANT WITH SOPHISTICATED, VERY COMPLETE SYSTEM. SHOWS CONSIDERABLE FLEXIBILITY IN SEEKING "RELATIONSHIP" DEALS.

BANK ILL. — CONSIDERABLE HISTORICAL STRENGTH BUT MAY LOSE MOBILNET. SEEMS TECHNICALLY LESS SOPHISTICATED BUT CONTINUES TO INVEST AND DEVELOP.

CELL. BUS. SYS. — TECHNICALLY SIMILAR TO CBIS, EMPHASIZES SERVICE OVER SOFTWARE DUE TO MARKET "VOLATILITY." CLAIMS 100K BILL/MO. CAPACITY FOR SERVICE WHICH WAS RE-WRITTEN 1983.

CELLULAR AND PAGING BILLING OFFERINGS

A COMPETITIVE OVERVIEW

WITH

EMPHASIS ON PRODUCT FEATURES AND PRICING

SPECIAL PRESENTATION FOR

CINCINNATI BELL INFORMATION SYSTEMS

MARCH 5, 1986

INPUT
PARSIPPANY, NJ
(201) 299-6999

INTRODUCTION

- IN JANUARY 1986 INPUT WAS ENGAGED BY CBIS TO CONDUCT IN-DEPTH INTERVIEWS WITH SENIOR MANAGERS AT FIRMS WHICH COMPETE WITH CBIS IN CELLULAR AND PAGING BILLING SERVICES.

- THE LIST OF COMPETITORS WAS DEVELOPED BY CBIS AND RECRUITING OF INFORMED INDIVIDUALS FOR THE INTERVIEWS WAS ACCOMPLISHED BY INPUT RESEARCH ANALYSTS.

- IN A DEPARTURE FROM ORDINARY TECHNIQUE, THE ACTUAL INTERVIEWS WERE CONDUCTED BY AN INPUT VICE PRESIDENT TO ESTABLISH A "PEER" RELATIONSHIP WITH RESPONDENTS IN TARGET COMPANIES AND TO MAXIMIZE THE RICHNESS OF OF THE INFORMATION OBTAINED.

- DETAILED DATA WAS OBTAINED FROM 100% OF THE COMPANIES TARGETED. RESPONDENTS EXHIBITED A HIGH DEGREE OF COOPERATION AND WERE EXTREMELY KNOWLEDGEABLE REGARDING THEIR RESPECTIVE OFFERINGS.

INTERVIEWS

THE FOLLOWING FIRMS WERE INTERVIEWED:

COMPANY	TITLE
AUXCO	VICE PRESIDENT
BANK OF ILLINOIS	MKTG. VICE PRESIDENT
BELL ATLANTIC ENTERPRISES	MKTG. DIRECTOR
CELLTECH, INC.	MKTG. DIRECTOR
CELLULAR BUSINESS SYSTEMS	MKTG. DIRECTOR
CELLULAR SOFTWARE, INC.	PRESIDENT
NORTH CENTRAL DATA COOP	SALES DIR., SR. SYST.COORD.
TDS	MKTG. DIRECTOR

- INTERVIEW DURATION RANGED BETWEEN 1.5 AND 2.5 HOURS PER FIRM, ALL DURING FEBRUARY 1986. ACCORDINGLY PLANS OR FUTURE CAPABILITIES SHOULD BE REFERRED TO THIS DATE.

RESPONDENT PROCESSING CHOICES

COMPANY	HARDWARE	O/S	DBMS

AUXCO	IBM 43XX	MVS	IMS,CICS
BANK ILL.	IBM 43XX	VM TO VMS	NONE
BELL ATL.	IBM 3081	MVS XA	IMS,CICS
	DEC VAX	VMS	
CELLTECH	IBM 43XX	VSE	CICS
CELL. BUS. SYS.	IBM 43XX	VSE	NONE
CELL. SOFT.	DATA P7 70 IBM PC	LAN	NONE
NCDC	BGH 6800/BGH 96	MCP	NONE
TDS	AMD V/8	MVS XA	NONE

- NOTE THE OVERWHELMING PRESENCE OF "370" ARCHITECTURE IBM SYSTEMS AND THE STRONG SHOWING OF MVS.

- NOTE ALSO A DBMS APPROACH IS NOT UNIVERSAL.

- ONLY AUXCO AND CELLULAR BUSINESS SYSTEMS ARE "CLASSICAL" ONLINE SYSTEMS WITH 3270'S UNDER SNA.

- CELLULAR SOFTWARE HAS A TECHNICALLY UNIQUE "DISTRIBUTED" ARCHITECTURE. OTHERS INCLUDING BAE, CELLTECH, NCDC, TDS, BANK ILL., PLACE SOME PROCESSING OPERATIONS ON THE CUSTOMERS SITE, USUALLY WITH A MS/DOS PC.

CUSTOMER EQUIPMENT

COMPANY	DESCRIPTION
AUXCO	3720 UNDER SNA OR BISYNC, 4.8 OR 9.6.
BANK ILL.	PC/DOS MICRO, DISKETTES ARE SHIPPED, SOME COMM.TELECOMM FOR UPDATES IN FUTURE. BASICALLY ALL FUNCTIONS EXCEPT RATING, RENDERING ON PC.
BELL ATL.	MICRO VAX ON CUSTOMER SITE DOES RATING, IBM PC ACTUATES SWITCHES, 3270'S CAN ALSO BE USED.
CELL. TECH.	IBM PC FOR CUSTOMER SERVICE AND ACCOUNTS RECEIVABLE.

CELL. BUS. SYS. 3270'S UNDER SNA @ 9.6.

CELL. SOFTWARE ARCNET-BASED DISTRIBUTED SYSTEM.WILL USE PC/AT'S AND CHARLES RIVER PROCESSOR.HAS NO "MAINFRAME."

NCDC ALL FUNCTIONS EXCEPT RATING AND RENDERING ON LOCAL BGH GEAR RANGING FROM B-96 TO B-1900.

TDS ALL FUNCTIONS EXCEPT RATING AND RENDERING HANDLED ON PC. LIMITED TO ONE PER SITE CURRENTLY.

NOTE: CUSTOMERS ARE EXPECTED TO PROVIDE OWN EQUIPMENT IN MOST CASES.NCDC SELLS BGH AT DISCOUNT,BAE PROVIDES VAX AS AS A PART OF SERVICE.

SERVICES OFFERED

COMPANY	CELL BILL	PAGE BILL	CELL SOFT	PAGE SOFT	CELL TURN	PAGE TURN	SAME
AUXCO	Y	Y	Y	Y	P	P	Y
BANK ILL	Y	Y	P	P	P	P	Y
BELL ATL	Y	N	Y	P	F	F	N
CELL TECH	Y	Y	Y	Y	F	F	Y
CELL B.S.	Y	Y	Y	Y	P	P	Y
CELL SOFT	N	N	N	N	Y	Y	Y
NCDC	Y	Y	P	P	N	N	Y
TDS	Y	F	P	F	Y	P	Y
%YES	88	63	50	38	25	13	88

KEY Y=YES; N=NO; P=POSSIBLE NOW; F=HAS FUTURE PLANS

SERVICES OFFERED,CONT'D

- WITH THE SOLE EXCEPTION OF BELL ATLANTIC, RESPONDENTS STATED THAT SYSTEMS AND SOFTWARE WERE THE SAME FOR PAGING AS CELLULAR. THESE RESPONDENTS DID NOT GIVE THE IMPRESSION THAT THEY ENGAGED IN MATERIAL PAGING ACTIVITY.

- IT APPEARS THAT THESE RESPONDENTS DO NOT TREAT PAGING AS A DISCRETE MARKET WITH SEPARATE NEEDS. SOME STATED THAT PAGING WAS "SIMPLE" AND COULD BE HANDLED INHOUSE.

- ALSO NOTABLE IS THE VERY HIGH DEGREE OF FLEXIBILITY AS INDICATED BY "P" RESPONSES. IN EFFECT THESE INDIVIDUALS ARE SAYING THAT WHILE THEY HAVE NOT "DONE DEALS" IN THESE MODES THEY REMAIN OPEN TO THE POSSIBILITY. THE WILLINGNESS TO NEGOTIATE VIRTUALLY ANY ARRANGEMENT WAS MULTIPLY EXPRESSED IN MANY CONTEXTS BY ALMOST ALL RESPONDENTS. THESE PEOPLE ARE FLEXIBLE ON BUSINESS TERMS AND CONDITIONS AS WELL AS MODES OF DELIVERY.

- THIS CAN BE SEEN IN THE TOTALS WITH 46% OF ALL POSSIBLE ENTRIES IN INDICATED AS "YES;" 27% AS "POSSIBLE;" 13% AS "AVAILABLE IN FUTURE" AND ONLY 14% AS "NO." OF THE "NO'S" OVER HALF COME FROM ONE SPECIALIST FIRM, CELLULAR SOFTWARE.

- OF THE FIRMS EXAMINED ALL BUT ONE ARE POTENTIAL COMPETITORS FOR CBIS IN CELLULAR BILLING PROCESSING AND SOFTWARE SALES. THIS DOES NOT MEAN THAT THEY ARE ALL MEANINGFUL COMPETITORS, AS WE SHALL SEE.

MEANINGFUL COMPETITORS

- FROM THE COMPLETE LIST WE MAY REMOVE THE FOLLOWING AS SIGNIFICANT COMPETITORS:

COMPANY	REASONS(S)
CELL.SOFT.	TECHNICALLY UNUSUAL, MAIN INTEREST IN NON-BELL AND CANADIAN. DOES NOT WANT TO DEAL WITH BOC'S DUE TO PRIOR BAD EXPERIENCE. LIMITED MARKETING.
NCDC	EMPHASIS ON SMALL TELCOS, NON IBM BUT VERY INEXPENSIVE. LIMITED MARKETING.
TDS	LIMITED SYSTEM SIZE(1K BILLS/MONTH) FOCUS ON SMALL TELCOS.
CELL.TECH.	EMPHASIS APPEARS TO BE AT LOW END OF MARKET, PC-ORIENTED,NO COMMUNICATION LIMITS TO 3-4K BILLS/MO/CUSTOMER.

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FUNCTIONS HANDLED

- 32 SPECIFIC BILLING FUNCTIONS WERE EXAMINED WITH RESPECT TO OFFERINGS, CHARGES AND PLANS TO OFFER(IF NOT PRESENTLY AVAILABLE). THIS SECTION SUMMARIZES THE RESPONSES.

- HANDLES ROAMING-ALL CLAIM TO OFFER. EXTRA CHARGES AT BANK ILL.,CELL. BUS. AND TDS.

- RATES DOMESTIC TOLL-NCDC NO, CELL. SOFT. CANADA ONLY. CELL.TECH. NO, AUXCO MANUAL. OTHERS YES.

ONLINE CAPABILITY

	USAGE	O/E	ORD. INQ.	ACCT.INQ.
AUXCO	Y	Y	Y	Y
BANK ILL.	RJE	RJE	RJE	RJE
BELL ATL.	VAX	VAX	VAX	VAX
CELL.TECH.	PC	PC	PC	PC
CBS	Y	Y	Y	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	BGH(L)	BGH(L)	BGH(L)	BGH(L)
TDS	N	PC	PC	PC

- NOTE THAT WHILE ALL FIRMS HANDLE THESE FUNCTIONS THEY ARE PERFORMED IN DIFFERENT WAYS.

- ONLY AUXCO AND CBS ARE "CLASSICAL" 3270 ONLINE; BALANCE RETAIN INFORMATION LOCALLY.

- TDS HANDLES USAGE REQUESTS BY TELEPHONE VERBALLY OR SENDS FICHE.

CAPABILITY,CONT'D

	CASH	O/L ENTRY	O/L BILL ADJ.	TREAT	LOCKBOX
AUXCO		Y	Y	Y	Y
BANK ILL.		RJE	RJE	Y	Y
BELL ATL.		Y	Y	Y	Y
CELL.TECH.		N	N	N	N
CBS		Y	Y	Y	Y
CELL.SOFT.		Y	Y	Y	Y
NCDC		BGH(L)	BGH(L)	Y	Y
TDS		PC	PC	PC	N

- AS IN THE EARLIER CAPABILITIES, NOTE THE VARIETY OF OF RESPONSES.

CAPABILITY,CONT'D

	ITEMIZATION	ADV.PAY	DEP.ACCTG.	RATE MAINT.
AUXCO	Y	Y	Y	Y
BANK ILL.	Y	Y	Y	Y
BELL ATL.	Y	Y	Y	Y
CELL.TECH.	Y,DISK	Y	Y	Y
CBS	Y	Y	Y	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	FICHE	Y	Y	Y
TDS	Y	Y	Y	Y

- NOTE THAT WITHIN THIS GROUP THERE IS LITTLE VARIATION ON THESE ITEMS.

- DEPOSIT ACCOUNTING IS TYPICALLY WITH INTEREST COMPUTATION.

CAPABILITY,CONT'D

	HOTLINE	TRAFFIC	STD.RPTS.	AD HOC RPTS.
AUXCO	ACCT. MGRS.	EASY-TRIEVE	25	EASY-TRIEVE($65)
BANK ILL.	8-5 5 DAYS	N	N	Y($45)
BELL ATL.	8-5 5 DAYS	CELLSITE	SOME	Y($65)
CELL.TECH.	8-8 5 DAYS	Y	Y	Y(N.C.)
CBS	12 HRS. 5 DAYS	Y	12	Y($50)
CELL.SOFT.	9-6 5 DAYS	Y	Y	USER
NCDC	8-5 5 DAYS	Y	Y	Y(N.C.)
TDS	8-4:30	N	12+	Y($65)

- SUPPORT IS GENERALLY FOR BUSINESS HOURS LOCALLY.

- TRAFFIC REPORTS WHEN PRESENT ARE MINIMAL,E.G. ERLANGS, CCS,BUSY.

- STANDARD REPORT CAPABILITIES VARY WIDELY AS DOES PRACTICE WITH AD HOC REPORTING.

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CAPABILITY,CONT'D

	REPAIR TRACK	# INV.	AUTO ASSIGN	REM. AGT. ENTRY
AUXCO	Y	Y	N(6)	Y
BANK ILL.	N	Y,PC	N	N(6)
BELL ATL.	N	Y	Y,PC	Y
CELL.TECH.	N	Y	N	N
CBS	N	Y	Y,PC	Y
CELL.SOFT.	Y	Y	Y	Y
NCDC	Y	Y	N	N
TDS	N	Y	N	N

0 NUMBER IN PARENTHESES INDICATES PLANS TO OFFER WITHIN 6 MONTHS.

CAPABILITY,CONT'D

	SALES LEAD	DEMAND BILL	G/L INTER	INV.TO S.D.
AUXCO	EASYTRIEVE	N	Y(MSA)	N
BANK ILL.	N	N	N(6)	N
BELL ATL.	N	N	N(6)	N
CELL.TECH.	N	N	N	N(2)
CBS	N(6)	N(6)	N	N
CELL.SOFT.	Y	Y	Y(OWN)	Y
NCDC	N	N	N(9)	Y
TDS	N	N	Y(OWN)	Y

- IN GENERAL, THIS IS A SPARSELY POPULATED SET WITH SOME DEVELOPMENT IS PROGRESS.

- SOME R'S INDICATE THAT THEIR CUSTOMERS DO NOT MAINTAIN EQUIPMENT INVENTORIES. AN INVENTORY TO S.O. IS THEREFORE NOT NEEDED IN THEIR VIEW.

- G/L INTERFACES ARE USUALLY VERY SPECIFIC. MOST INDICATE THEY WOULD WRITE A CUSTOM INTERFACE ON A T&M BASIS.

CAPABILITY,CONT'D

	EQUIP/LINE LINK	INV. FORECAST	INV. BAR CODE	INV./GL INTER
AUXCO	Y	N	N	N
BANK ILL.	N	N	N	N
BELL ATL.	Y(PC)	N	N	N
CELL.TECH.	N	N	N	DK
CBS	Y	N	N	N
CELL.SOFT.	Y	N	N	N
NCDC	N	N	N	N
TDS	Y	N	N	Y

- BELL ATL. HAS SEPARATE PC-BASED SYSTEM FOR EQUIPMENT INVENTORY USED BY AGENTS. ALSO INCLUDES LEAD TRACKING.

- NO ONE OFFERS OR PLANS TO OFFER INVENTORY FORECASTING OR BAR CODE SCANNING. R'S SEEMED "POLITELY MYSTIFIED" BY THESE QUESTIONS.

CAPABILITY,CONT'D

	T LEVELS	RENDERING
AUXCO	6 MAX	3 DAYS
BANK ILL.	6	5 DAYS
BELL ATL.	5	4 DAYS
CELL.TECH.	85	4 BUS. DAYS
CBS	P	3-7 DAYS
CELL.SOFT.	6	CLIENT SETS
NCDC	6/99	3 DAYS
TDS	5	2 DAYS DISKETTE

● AUXCO CLAIMS 3 DAYS IS "GUARANTEED," BANK ILL. STATES 5 DAYS IS CONTRACTUAL. CELL. SOFT.,(TURNKEY) ALLOWS FOR MONTHLY,QUARTERLY,SEMI-ANNUAL AND ANNUAL BILLING INTERVALS. TDS IS 2 DAYS AFTER RECEIPT OF DISKETTE.

CAPABILITIES EMPHASIZED

● FREE FORM QUERIES WERE MADE ON "ADDITIONAL OR PARTICULARLY IMPORTANT CAPABILITIES OF YOUR SYSTEM." THE FOLLOWING RESPONSES WERE OBTAINED:

● AUXCO-WE CAN DO CYCLE BILLING ON ANY BASIS UP TO DAILY. OUR MKTG SYSTEM INCLUDES PROFESSIONAL, SIC, AUTOTYPE AND ZIP CODE. NON IMPACT PRINTING AVAILABLE WITHIN 90 DAYS. WE PROCESS 60% PERCENT OF WIRELINE BILLS, TOTAL OF 252,000 BILLS IN DECEMBER 1985, 20 MILLION MESSAGES. PROCESSING BELL SOUTH, SW BELL PACTEL, UNITED, CONTEL MOBILE AND SNET. STRONG EMPHASIS ON CUSTOM REPORTING THRU EASYTRIEVE, DEVELOPING AUTOMATIC SWITCH INTERFACE.

● BANK ILL.-PLAN TO AUGMENT STANDARD REPORTS WHICH INCLUDE BUSINESS OFFICE, AGED TRIAL BALANCES,TAX,AGENT COMMISSION, REVENUE. CUSTOMER MICRO FUNCTIONS INCLUDE S.O., INQUIRY, BILL HISTORY AND DETAIL,SOME MESSAGE DETAIL,PAYMENTS AND ADJUSTMENTS. SYSTEM NEW IN APRIL 1985; STILL RUNNING SIDE-BY-SIDE. PROCESSING MOBILNET,SOME CELLULAR ONE, NY, LA, AND TAMPA RESELLERS, NO BELL WIRELINE,ALSO AKRON AND BUFFALO. EMPLOYES 60-70 PERSONS. DEVELOPING 3270 UNDER CICS(NO DATE) FOR COMMUNICATIONS.

● BELL ATLANTIC-ORDER ENTRY EMPHASIZES PRODUCTIVITY AND FLEXIBILITY. RESELLERS CAN ACTUATE #'S. CALLS RATED AT MID-NIGHT, PROCESSED NEXT DAY, THEN TO THIRD PARTY FOR RENDERING NIP. AGENT COMPLETION BY CSR IMPORTANT FEATURE. REPORTS ON VAX WITH FILES EXTRACTED FROM MAINFRAME. HAVE 35 PROGRAMMERS. SYSTEM IS EXTENSIVELY MODIFIED OF AT&T ORIGIN.RATING VERY EXTENSIVE INCLUDING OCC'S. EMPHASIZE FLEXIBILITY AND NEGOTIABILITY OF BUSINESS TERMS.

● CELL.TECH.-CLAIMS HAS NOT LOST A CUSTOMER TO ANOTHER VENDOR. FLOPPIES ARE TRANSMISSION MEDIUM-STATES ONLINE NEEDED AFTER BILLING EXCEEDS 3-4K ACCOUNTS/MONTH. USES MICRO-DBMS FOR QUERY RETREIVAL ON PC.CAN QUERY BY ACCOUNT #, EQUIPMENT SN, NAME, PHONE #. MARTIN MOORE DESIGNED SYSTEM. AMPS DESIGNER "WHY PAY FOR ONLINE IF YOU DON'T NEED IT."

● CELL.BUS.SYS.-EMPHASIZES THAT SOFTWARE IS TABLE-DRIVEN FOR GREATER FLEXIBILITY IN PROMOTION PRICING, FOR DISCOUNTS AND SPECIAL TARRIFFS. HAS INTERFACE TO SWITCH. CLAIMS TO PROCESS 80% OF NON-WIRE; 35-40% OF ALL SUBSCRIBERS, HAS 38 FULL-TIME PROGRAMERS WORKING ON ENHANCEMENTS. PROCESSING NON-WIRELINE IN TOP 10 MARKETS AND CENTEL, UNITED AND B.C. TEL WIRELINES. NO BELLS CLAIMED.

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● CELL. SOFTWARE--EMPHASIZES POWERFUL TECHNOLOGY,EXPANDABILITY TO 100K ACCOUNTS/MONTH. CLAIMS TO HAVE ONLY "REAL-TIME" BILLING SYSTEM TO 75 TRANSACTIONS PER SECOND FROM SWITCH. COMPLETELY INTERGRATED FROM LEAD CAPTURE THROUGH COLLECTION. R VERY TECHNICALLY ORIENTED. WORKING ON OPTICAL DISK STORAGE. 20 PERSONS IN THE COMPANY, 12 IN DEVELOPMENT. CLAIMS STRENGTH IN CANADIAN MARKET. STATES 1.2 MILLION LINES OF CODE HAVE BEEN WRITTEN FOR SYSTEM SINCE 1981. FULLY DISTRIBUTED USING "PIPELINE" PROCESSORS. WOULD NOT DIVULGE NAMES OF USERS.

● NCDC-EMPHASIZES AVAILABILITY OF OTHER PACKAGES INCLUDING G/L, A/R, A/P, PAYROLL.ABILITY TO DO CO-OP ACCOUNTING AS WELL AS CARRIER ACCESS BILLING AND CATV. EMPLOYS 77 PERSONS. SERVES 40 PHONE COMPANIES. RESELLS BURROUGHS GEAR BELOW BURROUGHS PRICES.OPERATES AS A NON-PROFIT CO-OPERATIVE.

● TDS-STATES HAS TWO SMALL(1KBILL/MONTH) CELLULAR CUSTOMERS.EMPHASIZES MARKETING INFO ON SYSTEM INCLUDING DEMOGRAPHICS, WHY USING, WHERE HEARD OF, USING CYBER FORMAT FOR CLEARINGHOUSE. NEW SYSTEM FIRST OFFERED IN Q4.87 SMALL WIRELINES INCLUDING TDS TERRITORIES. EMPLOYS 90 IN OPERATIONS AND 45 IN PROGRAMMING.

AUXCO PRICING

PROCESSING: $.50 PER #
$.015 PER MESSAGE, FIRST MILLION
$.0125 PER MESSAGE,1-2 MILLION
$.010 PER MESSAGE,2 MILLION PLUS
$.07 PER BILL PRINTING AND STUFFING
$.01 PER FLYER STUFFED
$25.00/TAPE(1X,200 AVG PER CLIENT)
$5K MONTHLY MINIMUM
$5K CGSA START-UP CHARGE INCLUDES:
1 WEEK TRAINING 4-5 PERSONS
AND TARRIFF LOADING INCLUDED.
COST FOR PAPER,ENVELOPES AND
POSTAGE.
PROGRAMMING @ $56.25/ HR.
CONVERSION IS CLIENT RESPONSIBILITY
OR CHARGED AT $56.25/HR.

SOFTWARE: $500,000 FOR 99 YEAR LICENSE 1 SITE
$450,000 FOR SECOND SITE
$400,000 FOR THIRD SITE
FURTHER SITES NEGOTIABLE
INSTALLATION @ 150,000/SITE W/YR WARRANTY
2ND YEAR MAINTENANCE @ 15% OF LINCENSE FEE
SOURCE LICENSE, DOCUMENTATION INCLUDED

COMMENTS: 1 SITE LICENSED, 1 IN NEGOTIATION,CLAIMS CROSS-OVER TO LICENSE OCCURS @ 40-50K BILLS/MONTH FOR INHOUSE. 2000 BILLS NEEDED FOR PROCESSING IMPLYING $2.50 PER BILL CHARGE. PAGING BILL PROCESSING AT SAME RATES.

BANK OF ILLINOIS PRICING

PROCESSING: CHARGES PER # BUT WOULD NOT STATE RATE
CLAIMS AVG COST/BILL IS $1.86 @ 4-5K
BILLS/MONTH
LOW COST=$1.25/BILL; HIGH COST=$2.25
"MOST WITHIN $1.70-2.00/BILL"
SCALE SLIDES IN 5K BILL STEPS
MESSAGES @ $.01 FIRST MILLION
$.009 SECOND MILLION
$.25 PER SERVICE ORDER, NO VOL. DIS'T
$50.00/ROAMER TAPE
RENDERING AND STUFFING INC. IN RATES
AS IS STOCK AND ENVELOPES
STUFFING(TO 3 SHEETS) ALSO INCLUDED
CONVERSION CHARGES "HIGHLY DISCRETIONARY"
AT $60/HR
ONLINE CHARGES FOR MACHINE TIME,CUSTOMER
PAYS "MACHINE CHARGES"
SOME TRAINING INCLUDED(NEGOTIABLE)

SOFTWARE: HAS NOT DONE ANY. NOT PRICED BUT WOULD BE
WILLING TO DISCUSS. WRITTEN IN COBOL, WOULD
RELEASE SOURCE CODE.
COMMENT: RESPONDENT VERY RELUCTANT TO DISCUSS PRICING
POLICY BUT COOPERATED IN ALL OTHER RESPECTS.

BELL ATLANTIC ENTERPRISES PRICING

PROCESSING: CHARGES PER ACTIVE #
10K #'S=$2.50 EACH
30K #'S=$2.25 EACH
50K #'S=$2.00 EACH
70K #'S=$1.75 EACH
90K #'S=$1.50 EACH
STANDARD ONLINE REPORTS INCLUDED

TERMINAL EQUIPMENT AND COMMUNICATIONS AT CUSTOMER EXPENSE

VAX AT BAE EXPENSE
SPECIAL REPORTS @ $200 CPU/MIN ON 3083J
PRINTING(TO 5 PAGES) AND STUFFING EXTRA AT $.025 PER IMAGE,INSERTION $.10
CONVERSION IS NEGOTIABLE(SEEKS MULTI-YEAR RELATIONSHIPS)

SOFTWARE: ONE TIME CHARGE $500=$750K INCLUDES SOURCE
30% DISCOUNT FOR OBJECT CODE ONLY
MULTIPLE SITES @ $500K EACH
$75K/YR SOURCE MAINTENANCE CHARGE
OFFERS SOFTWARE ON A TRANSACTION BASIS OF $.50/BILL PRODUCED AS ALTERNATIVE

3c

INSTALLATION AND TRAINING NEGOTIABLE

NO SITES NOW LICENSED

30K BILLS/MONTH EXPECTED CROSS-OVER POINT

CELL.TECH. PRICING

CELL PROCESSING:

CHARGES PER PHONE # AT $.5Ø
CALL DATA AT $.25 PER # PLUS $.Ø3
PER PAGE AT 42 CALLS PER PAGE
TYPICAL CHARGE $1.5Ø-$2.ØØ/BILL
NEW PRICING AS OF 3/1/86:
- Ø-3K BILLS=$1.5Ø
- 3-6K BILLS=$1.45
- 6-1ØK BILLS=$1.4Ø
- 1ØK+ BILLS=$1.35
- J.V'S CAN COMBINE FOR DISCOUNT
- TRAINING AT $25/HR(NEGOTIABLE)
- $45/HR FOR PROGRAMMING

PAGING PROCESSING:

$.75-$.5Ø AT 1ØK BILLS
NO RATING, FLAT RATE
WILL NEGOTIATE FOR HIGHER VOLUMES

SOFTWARE:

FLAT RATE AT $3ØØK
USAGE SENSITIVE ALTERNATIVE OF $.25 TO $.Ø5 AT 25K BILLS
NO POLICY ON MAINTENANCE(NEGOTIABLE?)

CELLULAR BUSINESS SYSTEMS PRICING

PROCESSING: TYPICALLY $3.ØØ PER # "EVERTHING INCLUDED"
NO EXTRA CHARGE FOR CALL DETAIL,PRINTING,
STUFFING,MAINTENANCE.
ONLINE ALSO INCLUDED(EX TERMINALS,COMM.)
DISCOUNT ON VOLUME 30K BILLS=$3.3Ø/BILL,
$1.9Ø=4ØK BILLS
TRAINING FREE(3-4 DAYS) EXCEPT TRAVEL

EXPENSE

$.5Ø PER ROAMING CALL, $3Ø. MINIMUM
PROGRAMMING $5Ø./HOUR
EXTRA CHARGES FOR RUNNING NOTICES AND
INTERNATIONAL TOLL

SOFTWARE: TYPICAL $25ØK PER SITE
WILL NOT PROVIDE SOURCE CODE
MAINTENANCE 1.5%/MO.=$375Ø
DISCOUNTS POSSIBLE WITH SUBSCRIBER VOLUME
OF SITES PROPRIETARY
WRITTEN IN COBOL
SWITCH MANAGER(PC-BASED) LICENSES AT

$7-$18K

82
1/3

CELLULAR SOFTWARE INC. PRICING

TURNKEY ONLY: SYSTEMS TO PROCESS 15,000 BILLS CONFIGURED AT $150-$175K. $250K SYSTEM WILL HANDLE 100K BILLS. CLAIMS TOTAL COSTS AS LOW AS $.50 BILL/MONTH.

OFFERS 25% DISCOUNT ON SECOND SITE, 27% ON THIRD,30% ON FOURTH.

CUSTOM ENHANCEMENTS $90-$150 HR,4 HR MIN.

MINIMUM SYSTEM CONSISTS OF FILE SERVER, PROCESSOR, TERMINALS, TAPE, PRINTER AND SWITCH CONVERTER. $75K HARDWARE; $75K SOFTWARE.

CLAIMS BREAKEVEN AT 2500 SUBSCRIBERS, EITHER CELL OR PAGE.

"WILL NOT WORK WITH BIG WIRELINES"

OVERHEAD, LEGAL AND SUPPORT COSTS TOO HIGH.

NORTH CENTRAL DATA COOPERATIVE PRICING

PROCESSING: $.24 PER ACCOUNT/MONTH FOR MAINFRAME PROCESSING

$.Ø25 PER RECORD MOBILE AIRTIME

$.Ø15 TOLL RATING

$3K FOR CUSTOM SITE SOFTWARE, $45K AVG H/W

$1.5K START UP INCLUDES INSTALLATION

$1ØØ/PERSON FOR 3 DAYS TRAINING

$25/HR FOR PROGRAMMERS

$55/HR FOR ANALYSTS

$15Ø/HR COMPUTER TIME(SPECIAL REPORTS)

PRICES SAME FOR PAGING OR WIRELINE TELEPHONE

SOFTWARE: SYSTEM AVAILABLE ONLY IN "HYBRID" PROCESSING MODE. LOCAL PACKAGE COSTS ARE AS FOLLOWS:

INVENTORY=$3K

G/L=$2.5K

A/P=$2.5

PAYROLL=$2.5K

TROUBLE REP.=$2.5K

VEHICLE ANAL.=$2.5K

UNCOLLECTABLES=$1.ØK

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TDS COMPUTING PRICING

PROCESSING:	CHARGES ON PER # BASIS
	$3.00 PER BILL W/ONE #(ALMOST ALL)
	SOFTWARE PROVIDED FOR PC
	2-3 DAY TRAINING PROVIDED
	TARIFF CHANGE FREE
	DETAIL INCLUDED
	SUPPLIES AT COST
	NO CURRENT VOLUME DISCOUNT SCHEDULE
	MACHINE TIME $1.50 CPU.SECOND(V-8)
	PROGRAMMING $65/HR(ALWAYS QUOTE)
SOFTWARE:	WOULD NOT QUOTE PACKAGE PRICES
	50% DISCOUNT FOR MULTIPLE SITES
	15%/YEAR MAINTENANCE AFTER 1 YEAR
	WILL PROVIDE SOURCE CODE

Bell Atlantic
Enterprises Corporation

Don,

Per your request:

1. Summary of bill printing and other costs.

2. Summary of system and traffic reports

Ron

Ronald A. Johnson

:NTERPRISES
; SYSTEM

OPERATION

	$65/HOUR TECHNICAL $13/HOUR CLERICAL

	$65.00/HOUR

	$ 2.25/FICHE
BILL PRINTING	$ .025 PER IMAGE SIDE
-DOUBLE SIDED	
-INSERTION (UP TO 5 PAGES)	$ .10
-EACH ADDITIONAL PAGE/PER INSERTION	$ .01
-PER ENVELOPE	$ .035
-POSTAL METER	$30.00/MONTH

OTHER SERVICES

ENHANCEMENT PROGRAMMING -MAY BE COST-SHARED WITH OTHER CLIENTS	$65.00/HOUR
APPLICATION HOTLINE SUPPORT -10 HOURS/MONTH FREE	$65.00/HOUR

Summary of Reports

Supporting MCSS Activity

Control Reports

1. Cash Payments Transmittal Report (CPR002)
2. Cash Payments Balanced Control Report (CPR003)
3. Balanced Batch Report (CPR000)
4. Cash Application Report (CPR001)
5. Cash Application Control Report (CPR004)
7. Control Report (CLR003)
8. Database Verification Report (ACSER002)
9. Billing Requests Edit Report (BIR001)
10. Daily Reporting Control Summary (RPR001)
11. Calls Archive Validation Report (ASR001)
12. Calls Archive Control Report (ASR002)

Outputs Supporting Administrative Activities

1. Daily Reporting Processing
2. Carrier Control Summary (RPR001)
3. Daily Call Adjustments Report (RPR002)
4. Daily Cash Application Report (RPR003)
5. Daily Pending Order Activity Summary (RPR004)
6. Daily Security Deposit Report (RPR005)
7. Temporary and Non-pay Disconnect Report (RPR012)
8. Directory Update Report (RPR013)
9. Daily MTSO Interface Activity (RPR014)
10. Overdue Order Report (RPR011)

Outputs Supporting Agent Commission Activities

1. Agent Commission Cycle
2. Request File Error Report (CBR009)
3. Control Totals Report (CBR010
4. Commissions Processing Report (CBR011)
5. Set Prep Activity Request
6. Set Prep Activity Report (CBR104)

Outputs Supporting Automated Collection Activity

1. Automated Collections Request Processing
2. Delinquent Accounts Report (CLR000)
3. Suspension Notice Level 1 (CLR001)
4. Suspension Notice Level 2 (CLR004)
5. Suspension Notice Report (CLR002)

Outputs Supporting Retailer Activities

1. Reseller Service Usage Summary
2. Service Usage Summary (CBR103)
3. Reseller Calls Summary and Calls and Service Detail
4. Call Usage Totals Report (CBR101)
5. Calls Report (CBR102)
6. Calls and Enhanced Services Distribution File (CB001)

Outputs Supporting Customer Service Activities

1. Customer Billing Cycle
2. Control Totals Report (BIR003)
3. Bills (BIR004)
4. Applied Cash Report (BIR005)
5. Credit Finals Report (BIR006)
6. Accounts Receivable Register (BIR007)
7. Tax Report (BIR008)
8. Journalizing Totals Report (BIR009)
9. Other Charges and Credits Report (BIR010)
10. Notifiers Report (BIR011)
11. Debit Finals Report (BIR012)
12. Agents' commissions Report (BIR013)
13. Charge off Report
14. Customers' Bills Archive Tape (BI0003)
15. Calls Tape for Customer (BIR004)
16. Summarize Tax Data
17. Tax Summary Report Processing
18. Tax Summary Report
19. Monthly Revenue Processing
20. Monthly Billed Revenue Report
21. Monthly Other Charges and Credits

Outputs Supporting Marketing

1. Number of Customers per Price Plan per Carrier
2. Percentage of Peak Air Usage per Price Plan per Carrier
3. Total Number of Customers using increments of usage per Price Plan
4. Total Number of Customers per agent/reseller by Date - totals by CGSA and Region
5. Reseller Tape Call Statistcs Report by call type by day
6. Reseller Tape Service Statistics Report
7. Calls Archieve Retrieval Report
8. Telemarketing Support Tapes - Leads List by Date
9. Telemarketing Support Tapes - Leads List by Carrier
10. Mass Mailing Label Printing Tape
11. Calls Archiving Microfiche Formatting
12. Auxilliary Calls Detail Report for Customer
13. OCC Reports sorted by Category and Type
14. New Phone Activations per Billing Cycle
15. Customer Retrieval Report by Price Plan

REPORTS AND FREQUENCY

CYCLE (MONTHLY)

- CUSTOMER INVOICES
- A/R REGISTER
- JOURNALIZING TOTALS
- TAXES
- OC&C
- APPLIED CASH
- AGENT'S COMMISSION
- CREDIT FINALS
- DEBIT FINALS
- NOTIFIERS
- DELINQUENT ACCOUNTS
- SUSPENSION NOTICES

DAILY

- DAILY CASH APPLICATION
- DAILY SECURITY DEPOSITS

OUTPUT SUPPORTING MESSAGE PROCESSING AND TRAFFIC STUDY

1. Least Cost Routing Report
2. Roamer Registration Report
3. Daily Calls Statistics Summary
4. Calls per Cycle Date
5. Non-Billed Calls Statistics Summary
6. Agent Billing Warning Report
7. MPS System Control Status Report

Outputs Supporting Message Service Activities

1. Telephone Numbers Inventory Reports
2. Telephone Number Inventory Status by Carrier (RPR006)
3. Telephone Number Inventory Status by Retailer (RPR007)
4. Telephone Number Inventory NPA by Carrier (RPR008)
5. Telephone Number Inventory NPA by Retailer (RPR009)
6. Telephone Number Inventory Critical Levels (RPR010)
7. MTSO Interface Activity Report (MTR002)
8. Usage Reports
9. Usage By Originating Call Site (MSR101)
10. Usage by Retailer (MSR102)

INTRODUCTION

- BEGINNING IN JANUARY 1986 INPUT WAS ENGAGED BY CBIS TO CONDUCT IN-DEPTH INTERVIEWS WITH SENIOR MANAGERS AT KNOWN FIRMS WHICH COMPETE WITH CBIS IN THE MARKET FOR CELLULAR & PAGING BILLING SERVICES AND ~~Billing~~ SYSTEMS / SOFTWARE.

- THE LIST OF COMPETITORS WAS DEVELOPED BY CBIS AND RECRUITING OF INFORMED INDIVIDUALS FOR THE INTERVIEWS WAS ACCOMPLISHED BY INPUT RESEARCH ANALYSTS.

- IN A DEPARTURE FROM ORDINARY TECHNIQUE, THE ACTUAL INTERVIEWS WERE CONDUCTED BY AN INPUT VICE PRESIDENT TO ESTABLISH A "PEER" RELATIONSHIP WITH RESPONDENTS IN TARGET COMPANIES AND TO MAXIMIZE THE RICHNESS OF INFORMATION OBTAINED. IN ADDITION SUBJECTIVE IMPRESSIONS OF THE TOPIC COMPETENCE AND "STYLE" OF THE RESPONDING COMPANIES WAS GAINED.

- DETAILED DATA WAS OBTAINED FROM 100% OF THE COMPANIES TARGETED. RESPONDENTS EXHIBITED A HIGH DEGREE OF COOPERATION AND WERE EXTREMELY KNOWLEDGEABLE REGARDING THEIR RESPECTIVE OFFERINGS.

J. T.
(704) 535
8810

CELLULAR & PAGING BILLING OFFERINGS

A COMPETITIVE OVERVIEW

WITH

EMPHASIS ON PRODUCT FEATURES AND PRICING

SPECIAL PRESENTATION FOR

CINCINNATI BELL INFORMATION SYSTEMS

MARCH 5, 1986

INPUT

PARSIPPANY, NJ

(201) 299-6999